

Consumers' Research

BULLETIN

February 1954

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Consumers' Research Bulletin

OFF THE EDITOR'S CHEST

THE myth that the rights of labor are superior to and have priority over the rights of any other group of citizens in this country has been built up by labor union executives and extensively propagated by persons in high places during the past two decades. In this connection, capital has been skilfully made of the average person's sympathy for the "underdog," the "common man," the "little people," the "poor factory worker," and these concepts hold a certain sentimental appeal that few have resisted. It is, however, becoming apparent that the uncompromising and belligerent demand of a group of men for higher wages, reinforced by techniques involving violence or threat of violence that are denied to other citizens, is not noble, but selfish, and will often have downright criminal aspects.

In and around New York City (and no doubt in other parts of the country) this past year there have been a number of strikes that have seriously inconvenienced a great many people who were not involved in any way except as victims. The one attracting greatest public attention caused the stoppage of all major New York newspapers for eleven days. Such incidents have produced a general feeling of revulsion against those responsible for stopping the supply of commodities and services essential to the public welfare.

To list just a few: Early last year a crime commission probe in New York City brought forth the fact that a shakedown racket by union leaders of a teamsters' local had collected tribute from one fruit and vegetable firm in the Washington produce market amounting to half a million dollars over a period of five years. Actually this money was mulcted from consumers who bought fruits and vegetables from this particular outlet, collected from them in the form of higher prices for the produce. This was but one example of a long series of such pocket-picking cases involving the Teamsters' Union and also the International Longshoremen's Association which have been an important factor in determining the prices of certain foods throughout the northeast.

Then there was the spectacle of a gravediggers' strike in half a dozen burial grounds around New York which hampered funerals, harassed mourners, and left hundreds of bodies unburied for weeks, with no public authority daring to challenge the "sacred right of labor"

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Consumers' Research functions to provide unbiased information on goods bought by ultimate consumers. For their benefit (not for business or industry) and solely with the funds they provide, CR carries on tests and research on a wide variety of goods, materials, and appliances, and publishes the findings in CR Bulletin. Consumers' Research is a non-profit institution, and is organized and operates as a scientific, technical, and educational organization.

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***For a brief cumulative index of the 1954 BULLETIN preceding this issue, see page 30.

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The Consumers' Observation Post

PRICES OF VARIOUS CUTS OF BEEF in the butcher shop are so high compared to what the farmer receives for beef on the hoof that the spread has been looked into by the U. S. Department of Agriculture. Preliminary investigation indicates that two of the chief items of expense in bringing beef to the consumer are freight and labor costs. Since both are fixed by regulation or contract, a temporary drop in the prices paid the farmer will bring only a small reduction at retail. Another cause of high meat prices is the consumer's preference for choice cuts such as steaks and roasts in the higher quality grade so that the butcher has little demand for the less desired cuts. Present methods of fattening cattle for market produce beef that has a considerable amount of suet or fat that must be stripped from the carcass and brings the butcher very little when it is sold. Two suggestions have been offered: that a change be made in the breeding of cattle to produce less waste, and that consumers be persuaded to buy more freely the less popular cuts; use of the less favored cuts would help to bring down the amount of money spent for beef by the average household.

* * *

THE LATEST DEVELOPMENT for new cotton rugs and those made of synthetic fibers is a chemical treatment to retard soiling. This is designed to make it easier to remove ground-in dirt. According to Chemical Week, the most widely used treatment is based on colloidal silica, licensed for manufacturers' use by Mohawk and sold under the name Chex Soil and Resistsoil. There is also a process used by the Alexander Smith Carpet Company called Juvenizing. It is too early to tell how effective the treatments will be.

* * *

IN BUYING A WASHABLE GARMENT that will satisfactorily withstand successive launderings, some excellent advice on what to look for is to be found in a little pamphlet put out by Burlington Mills intended primarily for manufacturers. It is pointed out that too many washable dresses, blouses, and other garments are not styled for home laundering. Some factors to keep in mind are that a pinked seam will withstand washing better than serged, castover, stitched, or raw edges. Seams that are too tight may cause puckering in laundering; 13 to 14 stitches per inch are desirable for best results. Seams should be at least a third of an inch deep, preferably a half inch. The so-called permanent pleats should be put in against the warp of the fabric. If the process is not done correctly, the pleats will not stay in.

* * *

ADVERTISING OF CIGARETTES has been under the cloud of public disapproval for a long time. Even advertising men have been known to express publicly their disapproval of the techniques used. The claims have become so extravagant and farfetched, including the use of pictures of men in white coats to look like doctors and scientists, that effective January 1, the American Medical Association has banned cigarette advertising in its official Journal.

* * *

MAKING A SELECTION of high-fidelity phonograph records by playing them in a listening booth of a phonograph shop has its pitfalls. As L. B. Holdridge pointed out in the Saturday Review of Literature last fall, the phonograph equipment provided is too often a cheap playback unit with an inadequate amplifier and speaker and a stylus with a sapphire point that has been used too long. The effect will be hard on the listener's ears, and a worn needle will damage the record so that it will be unwise in such.

cases to purchase one that has been played in the listening booth. As we have suggested before, records should be sold in sealed envelopes, and the one that is played by prospective customers should be marked "for demonstration use only" and not sold. Records may cost a bit more if this is done, but they may be expected to be in strictly new condition, which is important to the discriminating listener.

* * *

TELEVISION SETS "should stay fixed for at least six months" was the comment of an eastern magistrate as he dismissed a case involving an irate customer against a repairman. In behalf of the often berated TV repairman, it has been pointed out that many of the component parts of a television set are extremely difficult to get at. If the manufacturers would simplify the assembly, a repair job could be handled in much quicker time. The older sets are reported easier to put in order since the components are well spaced and the circuits are not so complex. One repairman advises that it is comparatively simple to repair an old set if the owner is willing to spend the money.

* * *

FROZEN VEGETABLES which are processed by the use of salt brine may contain substantial amounts of salt when they reach the consumer. Since there are a number of disease conditions in which it is important to restrict the intake of salt, all vegetables that are processed in this manner are now required by the Food and Drug Administration to declare presence of added salt on the label.

* * *

THE LITTLE DEVICE KNOWN AS A TRANSISTOR which is being used in telephone exchanges and in hearing aids is not yet capable of performing up to the great expectations held out for it. Considerable experimental work will need to be done before it will equal or out-perform the vacuum tube in certain respects. According to D. G. Fink, Director of Research of the Philco Corporation, the transistor cannot equal the power output of the vacuum tube in a standard home TV set, and in the audio frequency range it has a "noise figure" 20 times as high as that of the vacuum tube. It was expected that the transistor would have a long life, but Mr. Fink pointed out that at present no one knows for sure how to make commercial transistors with a shelf-life of 10,000 hours, and furthermore, transistors have a way of failing for no understandable reason. It is well to keep these points in mind the next time you read about the alleged suppression of a great invention or that some manufacturer is holding back on its development.

* * *

HOW LONG SHOULD YOU WAIT to turn in your car on a new one in order to get the best returns on your investment? There is some controversy in informed circles on the proper length of time. U. S. News & World Report, however, comes up with the suggestion for the car in the low-priced field: after 2-1/2 years or after it has run 45,000 miles, whichever is reached first; for a medium-priced car, after 3 years or 60,000 miles. The figures are reported to be based on studies by a Chicago firm of research engineers.

* * *

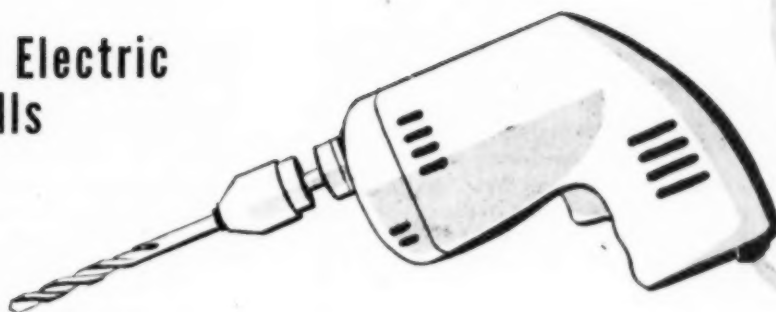
MEN'S SUITS last fall were not selling as well as in the previous year, according to one survey. Whether it is a factor or not in the decline, a number of retailers report that their customers want the regular vest brought back with single-breasted suits. Some merchants, in fact, say that there is a group of men who will pay an additional price to obtain the three-piece suit with a vest as part of the suit. Several stores have reported good sales of fancy vests now being widely promoted.

* * *

NEW HOUSES which have neither basement nor below-floor crawl spaces for ventilation present problems for the manufacturers of the smooth-surface type of floor coverings. In a speech last fall, R. K. Austin of Congoleum-Nairn commented that four types of floor coverings can be used in

(The continuation of this section is on page 33)

Portable Electric Hand Drills



THE most prized and useful possession of the average home workshop enthusiast is usually a portable electric drill, for it not only serves its primary purpose of drilling, but it can be used in conjunction with inexpensive attachments for many other types of light work such as buffing and polishing, sanding, grinding, paint mixing, and some other shop jobs, and can even be converted to provide a drill press or run a small circular saw. In the *Cummins do-it Shop* (see Figure 2), the electric drill is the source of power for a lathe, shaper, circular saw, drill press, and disk sander.

There are three kinds of portable electric drills: light duty, standard duty, and heavy duty. As

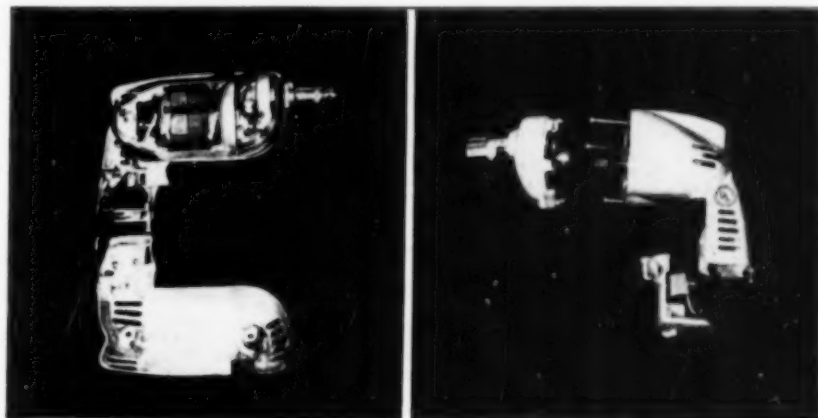
most home craftsmen require a drill for light, intermittent duty, the drills chosen for test, with the exception of *Porter-Cable* and *Cummins #4*, were of the light-duty type. These two were standard-duty drills.

Federal specifications for performance require that light-duty electric drills shall have a no-load speed not higher than 2500 rpm., and a full load speed of 1000 rpm. plus or minus 10 percent; a minimum full-load current of 1.3 amperes; minimum horsepower of 0.07; minimum torque at full load of 0.3 ft. lb. and a minimum stalling torque of 1.5 ft. lb. In addition to tests for conformance with these specifications, tests were made for temperature rise, proof voltage, and

Figure 1

SpeedWay drill (at the left) shown with part of outer case removed. This drill was somewhat difficult to re-assemble.

Skil drill (at the right) shown partly disassembled. A well-made compact drill of good design. Easy to re-assemble.



leakage current. The drills were dismantled and examined for type of bearings, gears, ease of replacing brushes, design, and quality of workmanship. No endurance tests were made.

The drills included in this test had rated no-load speeds ranging from 1200 rpm. to 2400 rpm. In drilling mild steel with a $\frac{1}{4}$ -inch drill, the actual speeds ranged from about 800 rpm. to 2000 rpm. While these speeds are satisfactory for drilling wood, and for work on mild steel with high-speed drills, carbon steel drills, most used by many home craftsmen, would likely have a short life at such speeds in drilling steel, particularly in the larger ($\frac{3}{16}$ and $\frac{1}{4}$ inch) sizes. For example, the Cleveland Twist Drill Co. recommend a speed of 6000 rpm. for drilling mild steel with a $\frac{1}{16}$ -inch high-speed drill and 1500 rpm. with a $\frac{1}{4}$ -inch high-speed drill. With carbon steel drills, these figures are reduced to 1800 rpm. for a $\frac{1}{16}$ -inch drill and 450 rpm. for a $\frac{1}{4}$ -inch drill.

Hazards

To protect the user against electric shock, the shell or housing of a portable drill should always be grounded when the drill is in use. For this

purpose, drills should be equipped with *three-wire* cables; two of the wires are used for carrying the current and the third is a ground wire to carry current only in case of current leakage or electrical breakdown. One end of the ground wire is attached to the frame of the drill inside the case and the other extends through the side of the attachment plug with a suitable fitting or connection to be fastened to the grounded receptacle box, or to some other grounded object, such as a water pipe or steam or hot-water radiator. It is important to check that the receptacle box is *actually grounded*, for in some instances the metallic covering of the cables in the circuit may have pulled away from the box, so as to break the connection to ground. (In such a case the ground wire could not perform its intended safeguarding function.)

If an extension cable is used, this should also be of the three-conductor type, and the two lengths of ground wire also properly connected before the drill is used. Because of the frequency of fatal accidents with electric drills, which are especially dangerous from a shock hazard standpoint, drills not having a three-conductor cable have not been given an *A-Recommended* rating regardless of their other qualities.

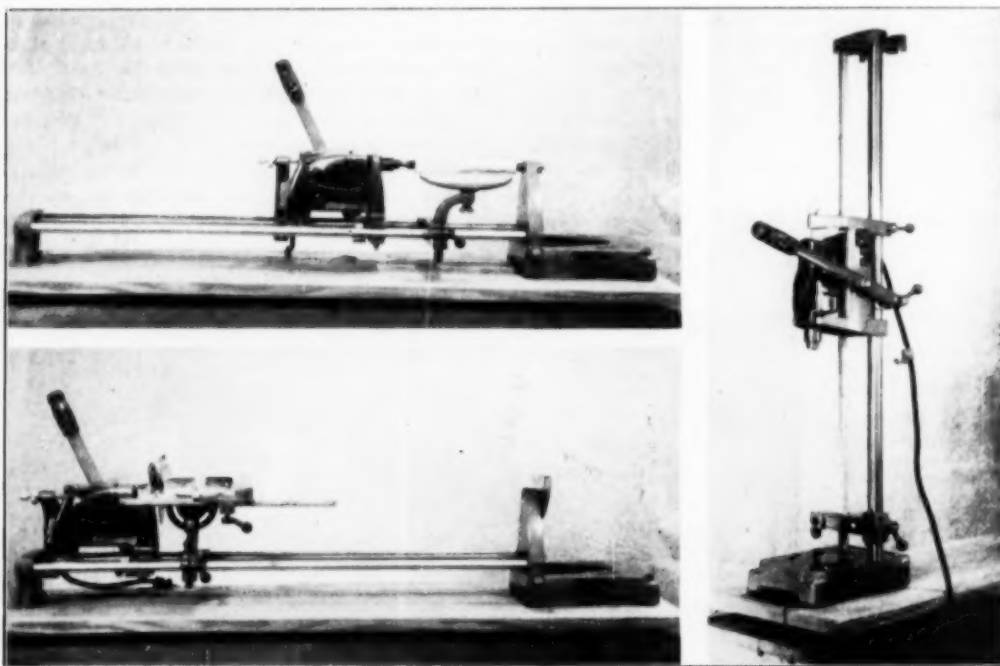


Figure 2

Cummins do-it Shop. Top picture, shown as set as for wood lathe; bottom picture, as circular saw; at right, as drill press.



The hazard from electric shock is greatly underestimated by most people, even by some engineers who should know better. One engineer wrote us that "the passage of sufficient current to cause a serious injury is impossible at such low voltages as the 115 volt power line." Actually a death has been caused by a voltage as low as 11, when surrounding conditions were such as to make the hazard a maximum. The hazard does not depend upon voltage alone, but voltage in relation to the resistance of the body, or body to ground, under particular conditions.

Chucks

There were three kinds of chucks available for the portable electric drills tested; the cheapest is that which is tightened by hand while the shaft of the drill is held from turning by insertion of a piece of steel in a hole in a collar attached to the shaft. The other kinds, the Hex-Key chuck and the geared chuck, are much more effective in action. With the Hex-Key chuck, the barrel of the chuck is rotated by hand until the jaws fit the drill, then a separate Allen key is inserted into a setscrew located near the top of the chuck and given a quarter of a turn to operate a cam-actuated device that causes the chuck to grasp the drill firmly. The familiar geared chuck uses a separate key having teeth on a bevel pinion which mesh with teeth around the bottom rim of the chuck. This type of key, like the Hex-Key, is designed to apply sufficient leverage to hold the drill bit securely.

* * *

Unless otherwise noted, the drills were equipped with desirable momentary contact switches,

with locks that could be set to hold the switch in the "on" position when desired. All of the drills caused bad interference with radio and TV. Ratings are cr54.

Portable Electric Drills

A. Recommended



Black & Decker Utility, Cat. No. HU-1 (The Black & Decker Mfg. Co., Towson 4, Md.) \$22.95 with Hex-Key

chuck, \$24.95 with geared chuck. Over-all length, 8 $\frac{1}{4}$ in. Net weight, 3 $\frac{1}{2}$ lb. Rated no-load speed, 2250 rpm. (actual, 2320 rpm.). Self-lubricating bronze bearings; ball-bearing thrust. 3-conductor cable (very desirable). To replace brushes required removal of 2 screws and handle. A well-made, compact drill of good design which easily met federal specifications for minimum horsepower, full-load torque, and stalling torque. Fairly quiet in operation. Listed by Underwriters' Laboratories.

Cummins 44 Ball Rite (Cummins Portable Tools'

Div. of Cummins-Chicago Corp., Chicago 40) \$29.95 with geared chuck. Standard duty. Over-all length, 8 $\frac{1}{2}$ in. Weight, 4 lb. Rated no-load speed, 1800 rpm. (actual, 2000 rpm.). Had 3-conductor cable (very desirable). Bearings, self-lubricated bronze. Single hardened steel ball serves as thrust bearing on spindle; self-lubricating bronze and ball bearings on armature. To replace brushes required removal of part of handle (2 screws). Failed by small margin to meet federal performance specifications for stalling torque for standard-duty drills. Had more powerful motor, but was similar in outside appearance to Cummins 38 except that the 44 had polished instead of matt-finished housing. About average in noise of operation. Listed by Underwriters' Laboratories.



Skil Home Shop, Model 518, Type 2 (Skil Corp., Chicago 30) \$22.95 with Hex-Key chuck, \$24.95 with geared

chuck. Over-all length, 8 $\frac{1}{4}$ in. Weight, 3 lb. Rated no-load speed, 2000 rpm. (actual, 2100 rpm.). Self-lubricating bronze bearings and ball-bearing thrust. 3-conductor cable (very desirable). To replace brushes required removal of one screw and a plate on handle. A well-made, compact drill of good design which met federal specifications for perform-

ance. Average in noise of operation. Listed by Underwriters' Laboratories.



SpeedWay, No. 200 II (Speedway Mfg. Co., Cicero 50, Ill.) \$19.50 with geared chuck, \$16.50 with hand tightening

chuck. Over-all length, 9 in. Weight, 4 lb. Rated no-load speed, 2400 rpm. (actual, 2050 rpm.). Self-lubricating bronze bearings. Two hardened steel balls serve as thrust bearing on spindle. 3-conductor cable (very desirable). Somewhat more difficult than other drills to disassemble for replacing brushes. Although not classified by manufacturer as a standard-duty drill, this *SpeedWay* met federal specifications for performance for drills of that class, and in these respects was easily the best drill tested. Somewhat bulky, and housing casting had rather thin walls, hence is judged to be more susceptible to damage if dropped than other drills tested. Workmanship, good. Design, satisfactory, but somewhat complicated. Noisy in operation. Listed by Underwriters' Laboratories.



Stanley Handyman, Type 0-19, Model A (Stanley Electric Tools, New Britain, Conn.) \$19.95 with Hex-Key chuck,

\$25 with geared chuck. Over-all length, 8 $\frac{3}{4}$ in. Weight, 3 lb. Rated no-load speed, 1800 rpm. (actual, 1700 rpm.). Self-lubricating bronze bearings, thin hardened steel thrust washer. 3-conductor cable (very desirable). To replace brushes required removal of 4 screws and handle. Failed by small margin to meet federal specifications for minimum horsepower under full load. A well-made, compact drill of good design. Fairly quiet in operation. Listed by Underwriters' Laboratories.

B. Intermediate



Craftsman (Sears-Roebuck's Cat. No. 9-2577) \$23.95, plus postage, with geared chuck. Over-all length, 7 $\frac{3}{4}$

in. Weight, 3 $\frac{1}{2}$ lb. Rated no-load speed, 1600 rpm (actual, 1850 rpm.). Had 3-wire cable (very desirable). Used 2 ball bearings, a needle bearing, and a bronze bearing with provision for oiling. Positive on-off switch. To replace brushes required removal of handle (2 screws). Failed federal specifications for stalling torque. A compact, very well-made and designed drill. Noisy in operation. Listed by Underwriters' Laboratories.



Cummins, Model 38 (Cummins Portable Tools) \$21.95 with geared chuck, \$17.95 with hand-tightening chuck. Over-

all length, 8 $\frac{3}{4}$ in. Weight, 3 $\frac{1}{4}$ lb. Rated no-load speed, 1800 rpm. (actual, 1500 rpm.). No ground wire (undesirable). Oil-less bronze bearings. Single hardened steel ball serves as thrust bearing on spindle. To replace brushes required removal of part of handle (2 screws). Failed federal specifications for stalling torque. A compact and well-designed drill, but of cheaper construction than *Model 44*. Fairly quiet in operation. Approved by Underwriters' Laboratories.



Mall, Model 149B (Mall Tool Co., Chicago) \$20.50 with geared chuck. Over-all length, 8 $\frac{1}{4}$ in. Weight, 3 $\frac{1}{2}$ lb. Rated

no-load speed, 2000 rpm. (actual, 2100 rpm.). Lacked ground wire (undesirable). Self-lubricated bronze bearings. To replace brushes required removal of part of handle (3 screws). Met federal specifications for performance. A compact, well-made drill of good design. About average in noise of operation. Listed by Underwriters' Laboratories.



Porter-Cable, Model 107 (Porter-Cable Machine Co., Syracuse 8) \$29.95 with geared chuck. A standard-duty drill.

Over-all length, 9 in. Weight, 4 lb. Rated no-load speed, 2000 rpm. (actual, 1975 rpm.). 3-conductor cable (very desirable). Oil-less bronze bearings with radial and thrust ball bearing on spindle. To re-

place brushes required removal of 3 screws and part of handle. Met federal specifications for performance. Failed proof-voltage test at high humidity; otherwise would have received an A rating. Exceptionally well made and designed. Somewhat noisy in operation. Listed by Underwriters' Laboratories and Canadian Standards Association.

C. Not Recommended



Dunlap, No. 626.25752 (Sears-Roebuck's Cat. No. 9-2575) \$13.50, plus postage, with hand-tightening chuck. Over-all length, 12 $\frac{1}{4}$ in. (unusually long). Weight, 3 $\frac{1}{2}$ lb. Rated no-load speed, 1500 rpm. (actual, 1350 rpm.). Lacked ground wire. Bronze bearings with provisions for oiling. Brushes easily replaced without removing any part of housing. Required special socket wrench (serious disadvantage), not furnished, to remove housing at front end of drill; otherwise was easy to disassemble. Failed to meet federal specifications for performance on all counts except stalling torque. Failed in proof-voltage test at high humidity. Listed by Underwriters' Laboratories. Design, only fair; workmanship, good. Unusual length of the *Dunlap* would be a disadvantage in working in close quarters. Fairly quiet in operation.



Fairchild, Model F-149 (Fairchild Industries, Burlington, Vt.) \$17.95 with hand-tightening chuck. Over-all length, 10 $\frac{3}{4}$ in. Weight, 3 $\frac{1}{4}$ lb. Rated no-load speed, 1200 rpm. (actual, 1150 rpm.). Lacked ground wire (undesirable). Oil-less bronze bearings, but lubrication provided for at two points. Positive on-off switch. Brushes easily replaced without removing any part of housing. Failed to meet federal specifications for performance on all counts except stalling torque. Sturdy housing of simple design. Chuck had considerable wobble (undesirable). Workmanship in general, good. Unusual length of this drill would be a disadvantage for some work in close quarters. Somewhat noisy in operation.



Powr-Kraft, Model 15TPC-2603 (Montgomery Ward's Cat. No. 84-9225) \$11.95, plus postage, with "hand-

tight" chuck. Over-all length, 11 $\frac{1}{4}$ in. Weight, 3 $\frac{1}{4}$ lb. Rated no-load speed, 1600 rpm. (actual, 1440 rpm.). Lacked ground wire (undesirable). Bronze bearings (rear bearing had provision for oiling). Brushes easily replaced without removing any part of housing. Failed to meet federal specifications for performance on all counts but stalling torque, in which this model was satisfactory. Design, fair; workmanship, good. Unusual length would be a disadvantage for some work in close quarters. Relatively quiet in operation. Listed by Underwriters' Laboratories.

Combination Tool

B. Intermediate

Cummins do-it Shop (Cummins-Chicago Corp., Chicago 40) \$79.95 including *Model 44 Cummins* electric drill (see listing under drills). Advertised as 7 power tools in one: "Precision bench saw; lathe; horizontal drill; vertical drill press; shaper, disc sander and portable electric drill." While this tool cannot be compared with individual tools driven by motors of $\frac{1}{4}$ hp. or more, or with a tool such as the *Shopsmith* (CR BULLETIN, May 1952), it is considered a useful tool for the home owner who needs to make minor repairs or wishes to undertake small woodworking projects. The 4-in. diameter saw, driven by the drill which has a horsepower of 0.14 at 1100 rpm., is definitely limited in capacity; it can, however, handle soft wood boards up to 1-in. thickness. The drill press was satisfactory, as was the lathe, except that the noise of the motor in this operation was considered very objectionable; much noisier than regular lathe driven by separate motor.

Drill Accessory

A. Recommended



Drill-Level (M & J Specialty Co., Red Hook, N.Y.) \$4.95.

A useful device for certain types of work where it is necessary to maintain an electric hand drill in a vertical or horizontal position or at any angle desired. Consisted of a bubble-type level mounted on a movable bracket graduated from 90° to 0° to 90° in 15° steps. Quickly attached to most $\frac{1}{4}$ -in. drills by means of a screw clamp.

Two 1954 Automobiles and a Station Wagon

IT IS interesting to note that in recent years the automobile manufacturers have not mentioned f.o.b. factory prices in the advertising of their cars. Nowadays the factory price is so far removed from the delivered price that advertising carefully avoids calling attention to the wide gap. For those subscribers who have not bought a car recently, a breakdown of the items making up the total prices of the first two 1954-model cars bought and tested by CR will no doubt be surprising, and of interest.

	Plymouth Savoy	Dodge Royal V-8
"Price of car"	\$1717.00	\$2167.00
Transportation charge	145.00	145.00
Federal tax (on car only)	135.50	169.75
Two-tone paint	—	12.00
Accessory group	36.70	72.15
Power steering	130.00	140.00
Automatic transmission	135.00	175.00
Heater	78.25	78.25
Radio	—	101.00
Tax on accessories	26.75	30.85
Air-foam cushions	8.25	—
E-Z vision group (tinted glass)	39.65	—
	\$2452.30	\$3091.00

These figures show why General Motors can advertise that their *Buick Special Model* (\$2286 with a minimum of extra equipment) can be purchased for less than some models of the Big Three "low-priced" cars (when these are loaded with extra equipment).



Plymouth Savoy

A—(Tentative)

Plymouth Savoy. \$1998 delivered N.J. Heater, \$78; power steering, \$140 (\$130 plus tax); *Hy-Drive*, \$146 (\$135 plus tax).

CR'S FINDINGS ON ROAD TESTS

Speedometer errors: at indicated speed of 20 m.p.h., actual speed was 21 m.p.h.; at 35 m.p.h., correct; at 50 m.p.h., 49 m.p.h. (these errors unusually low). **Odometer** was inaccurate by about 4% (100 miles would be recorded as 104 miles).

Acceleration time was below average for cars in this price class; the low value of acceleration is believed to be due to the power loss in the *Hy-Drive* (semiautomatic) transmission (last yr.'s car with same engine and standard transmission had much better acceleration). From 0 to 30 m.p.h., 8.3 sec.; from 20 to 50 m.p.h., 16.6 sec. (1953 model, 14.3 sec.); from 40 to 60 m.p.h., 15.6 sec., unusually poor (on the 1953 test car, 10.0 sec.).

Gasoline mileage under test conditions:¹ at 30 m.p.h., 20.4 m.p.g.; at 50 m.p.h., 17.0 m.p.g. (about 10% less than last year's car with the standard transmission).

Riding comfort was very good under all conditions. Cornering ability (i.e., ability of car to hold the road at high speeds when taking a curve) was fair; car handled easily as did recent previous *Plymouths* (but see comments under power steering). Car body was adequate as to space except for leg room in the front, which might be inadequate for some tall persons. High transmission hump in floor at front was considered a marked disadvantage.

Hy-Drive semiautomatic transmission is a combination of torque converter (4 element) and standard 3-speed transmission. The clutch pedal is retained and is used when changing from one range to another (Low to High and vice versa) or to reverse and neutral. The *Hy-Drive* is not much lower in price as an extra than the fully-automatic transmissions on other makes; it does appear to be a good compromise between a standard shift and a fully-automatic transmission. Most driving is done with gear lever in high, and there is no "kick-down" to provide additional acceleration or hill-climbing ability. In parking, sole dependence is on the hand brake (see comments under *Dodge*). To start the car by pushing, if this should become necessary, the gear shift is placed in first gear (low) and car will usually start

¹These are not the same figures as miles per gallon under average road conditions; however, the 50 m.p.h. figure for gasoline consumption, if multiplied by 0.8 or 0.9, will often be close to that obtained in normal driving of an automobile.

when a sufficient speed is reached (if trouble is due to a low battery).

Power steering, available as optional equipment, is similar to that used on Dodge; the power steering unit is coupled directly to the steering linkage. Very little effort is required on the part of the driver to turn the wheels, with the result that the driver's "road feel" is diminished to a point where it is practically non-existent. Most of the engineers who drove the test car expressed a preference for another type of power steering in which the power assistance does not come into action until the driver has exerted a force of 3 or 4 lb. on the steering wheel rim. In a high cross wind, the Plymouth equipped with power steering was difficult to handle. There was a considerable tendency to oversteer, but we believe this would be overcome with experience, as the driver became accustomed to the car, provided that he drove the same car all the time and did not have occasion to change from time to time from the Plymouth to a car having a different type of power steering or to a car with manual steering. The wisdom of using power steering on light cars of which the wheels are ordinarily not at all difficult to turn except in parking appears to CR extremely doubtful; power steering assistance is not necessary or desirable for driver, of normal build and strength in handling any light car and would seem perhaps to involve significant extra risks in driving on snowy and icy roads. As to its value in parking, perhaps the designers can devise a means of making power steering inoperative at the will of the driver so that it can be thrown out of action when road conditions make its use undesirable or dangerous.

OBSERVATIONS AND CONCLUSIONS

The interior light was turned on by opening of right front door or by switch on post on left side behind driver (it would be more convenient if the light were operated by left front door, or better yet upon opening either front door). Dull-finish paint used on top of dash to reduce reflections. Fresh-air inlet for heater was located in a position now common to many cars, on the right side of the front; this position is not good, as it favors picking up exhaust fumes from the car ahead. The car had a separate cowl ventilator (good). The heater was satisfactory and afforded fairly good regulation. Controls and dash arrangement were good except that the ash tray was not within easy reach of the driver. Heater controls not illuminated. The engine was noisier than average when accelerating (sound like rushing air). To lock car required use of key by driver (desirable to prevent locking oneself out of the car). Vision over hood, very good; to rear, good. The spare tire was readily accessible, and the trunk space adequate. The smell of gasoline noticed in last year's Plymouth test car was not present. Except for the objections mentioned regarding power steering, the Plymouth appears to be a very good car with no serious faults. Essentially not significantly different from last year's model (continuance of a good, well-tried design is, of course, an advantage, rather than otherwise, from the consumers' standpoint).

PLYMOUTH P-25-2 SPECIFICATIONS

Engine

6 cylinders, "L" head
Bore, 3-1/4 in.; stroke, 4-3/8 in.
Piston displacement: 217.8 cu. in.
Brake horsepower (rated): 100 at 3600 rpm.
Taxable horsepower: 25.35
Compression ratio: 7.1 to 1
Automatic choke
Crankcase oil capacity: 5 qt.
Oil filter: partial-flow type
Cooling system: 13 qt. plus 1 qt. for heater

Chassis, etc.

Wheelbase: 114 in.
Over-all length: 193-1/2 in. (4-1/2 in. longer than 1953 model)
Width: 74-1/4 in.
Height: 61-3/4 in.
Gear ratio: 3.73 to 1 with conventional or semi-automatic transmission (4.1 to 1 with overdrive)
Engine revolutions per mile: 2790
Tires: 6.70 x 15 (adequate)
Brake area: 158 sq. in.
Brake factor²: 42 (satisfactory)
Frame: box-type side rails, with 4 cross members
Road clearance: 7-3/8 in.
Turning diameter: 39 ft.
Front shoulder room: 55-1/2 in.
Rear shoulder room: 53-1/2 in.
Steering factor: 3.3 (with power steering)

Other details

Battery: 100-amp.-hr.
Gasoline tank: 17 gal.
Windshield wipers: 2-speed electric (lacks automatic restoration to full down position)
Shipping weight: 3027 lb. (stripped model)
Curb weight: 3334 lb. (with Hy-Drive and power steering)—54% on front wheels (about normal)

B+ (Tentative)

Dodge Royal V-8. \$2482 delivered N.J. Heater, \$78; radio, \$101; automatic transmission, \$189 (\$175 plus tax); power steering, \$150 (\$140 plus tax).

CR'S FINDINGS ON ROAD TESTS

Speedometer errors: at indicated speed of 20 m.p.h. and 35 m.p.h., correct; at 50 m.p.h., actual speed was 49 m.p.h. **Odometer** was approximately correct. (Speedometer and odometer errors, unusually low.)
Acceleration time from 0 to 30 m.p.h., 6.5 sec. (average); from 20 to 50 m.p.h., 10.5 sec. (good); from 40 to 60 m.p.h., 13.4 sec. (below average); from 40 to 60 m.p.h. when kicked down, 9.3 sec. (average).
Gasoline mileage under test conditions:¹ at 30 m.p.h., 18.2 m.p.g.; at 50 m.p.h., 16.1 m.p.g. These figures were not as good as obtained on the 1953 model with the less desirable (from an operational standpoint) Gyro-Torque transmission (about 10% less, on 1954 model).

Riding comfort was very good; the ride was softer than

¹A measure not of braking ability, but of brake life expectancy.



Dodge Royal V-8

that afforded by a fairly hard-riding car such as the 1953 Chevrolet (or Pontiac), but not too soft. General roadability and stability on curves was good. Some drivers complained that the front seat was uncomfortable. The car was adequate as to space, but as with the Plymouth the large transmission hump in the floor of the front compartment would make riding uncomfortable for a person seated in the middle, on a long trip.

Automatic transmission. The PowerFlite is a new fully-automatic transmission available in all but the Suburban, as optional equipment. Eliminating the clutch pedal, this new transmission consists of a torque converter and a two-speed planetary gear box. The car can be started only when the selector lever is in neutral; from then on all normal driving is done with the lever in the Drive (D) range. Starting from rest, the car accelerates in low gear and shifts to direct drive at a speed between 15 and 60 m.p.h., depending on the amount by which the accelerator pedal is depressed. There is no advantage in starting in Low (L) and moving to Drive (D), as the starting gear ratios are the same in both ranges. At speeds below 55 m.p.h., the transmission can be kicked down into low gear to provide extra acceleration by pressing the accelerator pedal to the floor. This transmission is said to weigh 100 lb. less than the heaviest of the other automatic transmissions and to have 110 fewer parts. In CR's road tests this transmission operated smoothly except that, as received, kick-down did not always function. This, however, was corrected by the dealer. We judge that it should be satisfactory for those who prefer a car with an automatic transmission, but see comments on lack of power under "Observations and Conclusions." PowerFlite has the disadvantage of the lack of a parking position; the hand brake is the only means for preventing movement of the car and therefore must be kept at all times in strictly dependable condition. In CR's opinion, one should never have to depend solely on a parking brake to hold a car on a hill, for example; the hazards to the car and to pedestrians or to children is, we believe, too great to warrant such a design of an automatic transmission. To start the engine by pushing, if this becomes necessary, the selector lever must be placed in the Neutral position and then moved to Low (L) when a speed of around 25 m.p.h. is reached.

Power steering, available as optional equipment, is of the type in which the power steering unit is coupled directly to the steering linkage. With this device, very little effort is required on the part of the driver to turn the steering wheel. The result is that the driver's "road feel" is greatly diminished. The Dodge required more effort to turn steering wheel (desirable) than the Plymouth, possibly due to the fact that the Dodge was about 300 lb. heavier at the front end and used larger tires.

OBSERVATIONS AND CONCLUSIONS

The test car was equipped with power steering and the PowerFlite automatic transmission. Although this car had ample pep on level roads, there was a noticeable lack of power in climbing hills unless kicked down to low gear; we believe this fault must be attributed to the automatic transmission. Desirable features were: fresh-air inlet located at the top of the cowl; dull paint on the top and bottom of the dash to reduce reflections; dome light controlled from instrument panel. Instruments were legible, well placed and lighted, except for the clock, which was too far to the right for the driver, and besides was oblong in shape making it difficult to read even under favorable circumstances. To lock front doors

DODGE ROYAL V-8 SPECIFICATIONS

Engine

8 cylinders in 90° V arrangement, overhead valves
Bore, 3-7/16 in., stroke, 3-1/4 in.
Piston displacement: 241.3 cu. in.
Brake horsepower (rated): 150 at 4400 rpm
Taxable horsepower: 37.8
Compression ratio: 7.5 to 1
Automatic choke
Crankcase oil capacity: 5 qt.
Oil filter: shunt type
Cooling system (pressure type): 19 qt. plus 1 qt. for heater

Chassis, etc.

Wheelbase: 119 in.
Over-all length: 205-1/2 in.
Width: 74-1/4 in.
Height: 62 in.
Gear ratio: 3.9 to 1 (3.54 to 1 with automatic transmission)
Engine revolutions per mile: 2890 (2620 with automatic transmission)
Tire size: 7.10 x 15 (slightly overloaded)
Brake area: 173-1/2 sq. in.
Brake factor:³ 41 (satisfactory)
Frame: box section, with 3 cross members
Road clearance: 8 in.
Turning diameter: 41 ft. 4 in.
Front shoulder room: 57 in.
Rear shoulder room: 55-1/2 in.
Steering factor: 3.8 (satisfactory with power steering)

Other details

Battery: 105-amp.-hr.
Gasoline tank: 17 gal.
Windshield wipers: 2-speed electric
Shipping weight: 3425 lb. (stripped model)
Curb weight: 3713 lb. (with automatic transmission and power steering)—56% on front wheels

of car required use of key (desirable to prevent locking oneself out of the car). The heater had good capacity, but was found difficult to regulate. The starter is operated by turning the ignition key to the right. The ignition key locks the front doors, and a second key is provided for the trunk and glove compartment. The spare tire was readily accessible, and the trunk space adequate. The most serious objection to this car was the lack of power and speed on hills. Very possibly this car with a standard transmission would give much better performance; the standard transmission Dodge has not yet been tested.

• • •

Note: Ratings will not be assigned to station wagons until more have been tested so that comparisons of their various features can be made.

Plymouth Plaza Suburban. \$2136 delivered Pa. Heater, \$56 or \$78; radio, \$83 or \$101; Hy-Drive, \$145 (tax included).

A 2-door steel body station wagon. As this car, except for body, closely resembles the Plymouth Savoy, tests for acceleration or gasoline mileage were not made.

Riding comfort was very good on smooth pavements. At low and moderate speeds on rough roads there was noticeable but not excessive pitching and some road shock was experienced by rear seat passengers. Steering and handling were very good.

OBSERVATIONS AND CONCLUSIONS

Engine noise level was above average as in the Plymouth Savoy. This car was equipped with Goodyear "Suburbanite" (snow) tires, and tire hum was higher than for most passenger cars using the same type of tires. Apparently the body panels and roof did not incorporate as much sound-deadening materials as most passenger cars. No fumes or exhaust gas odors were noticed when driving at low and moderate speeds with the upper luggage compartment door open. The exhaust tailpipe was designed to discharge gases at right angles to the slipstream at the right rear wheel. Interior appointments are considered good, for the most part. However, construction of rear sliding window latches did not permit adjustments for wear of rubber bumper. This may cause loose windows and drafts as the car gets older. Considerable effort is required to fold the rear seat when the maximum floor area is desired. While an average man can fold this seat, it is considered doubtful

whether a woman could do so. The back portion of the rear seat (which becomes part of floor when seat is collapsed) is a painted steel stamping. The appearance of this surface after considerable use would be most unattractive. Considering the price of the car, a few added dollars for a better non-scuffing surface of the back of the rear seat would be a worth-while addition. The rear seat cushion is approximately 8 in. narrower than the front seat cushion, and two small package compartments flank the rear seat cushion. While it is possible for three adults to occupy the rear seat, it is doubtful whether it would be comfortable on a long trip. The hip room is the same as for the front seat, but the seat area is less. Thus, the seating capacity of this station wagon may be considered to be 5 instead of 6 as claimed. The front seat back rest is made in two parts. The right-hand portion (approximately a third of the width of the back rest) must be folded forward to permit entry and exit for the rear passengers. The tail gate and the hinged section forming the rear window cannot be opened from the inside as would be desirable. The spare tire is located under the floor of the luggage compartment. With a loaded luggage compartment, more inconvenience than for a typical passenger car may be expected if a tire must be changed. The lug wrench and jack are located under the rear seat. No difficulty in jacking up the car was evident except for the rear wheels if the tail gate were down. Because of very good side and rear visibility (unless rear view was obstructed by contents of luggage space), coupled with rather light steering, parking was easy. This car should appeal to those who want slightly more luggage space than available in an average passenger car, and who wish to carry items too bulky for a passenger car trunk.

PLYMOUTH PLAZA SUBURBAN SPECIFICATIONS

Engine

See Plymouth Savoy

Chassis, etc.

Over-all length: 189-1/2 in.

Height: 62 in.

See Plymouth Savoy for other specifications

Dimensions of luggage space

Usable width (wheel housing): 47 in.

Minimum depth from back of rear seat to closed tail gate: 31 in.

Minimum depth from back of front seat (rear seat folded forward) to closed tail gate: 60 in.

Average interior height: 37 in.

Rear deck opening height: 32 in.

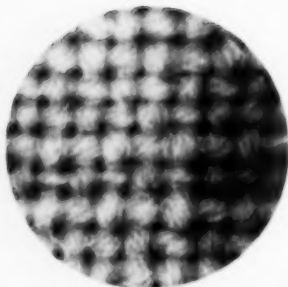
Net width across tail gate latches: 44 in.

Other details

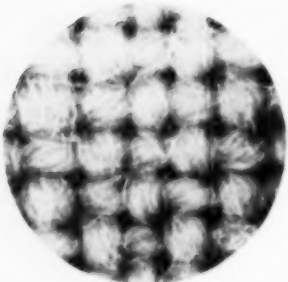
Shipping weight: 3170 lb.

Curb weight: 3305 lb.—51.5% on front wheels (favorable)

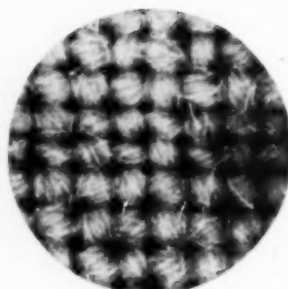
Fitted Sheets



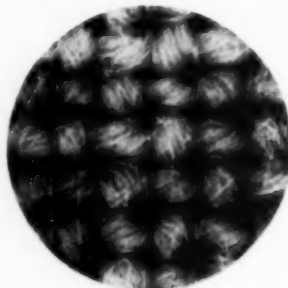
←
TYPE 200 sheets, "luxury" percales, are smooth, lightweight sheets. They cost more than the other types.



→
TYPE 180, utility percales, are lightweight sheets that are a little smoother than the stronger Type 140 muslin. They are usually more expensive than muslin.



←
TYPE 140 sheets, heavy-weight muslins, will withstand hard laundering and normally wear longer than other sheets. They are medium priced.



→
TYPE 128 sheets are not so strong as the others and do not have the durability of the heavy-weight muslins or the percales. They are usually less expensive than other sheets.

Sheets are usually known by their type, which is expressed as the total thread count of the filling yarns plus that of the warp yarns in one square inch. The magnification in the pictures above is 20 X.

TEXTILE MANUFACTURERS, not to be outdone by appliance manufacturers, have been at work on the problem of making life easier for the housewife. One of their newest ideas in this direction is the fitted sheet. Housewives undoubtedly find fitted sheets a desirable improvement over ordinary flat sheets. A sheet with a corner to fit the mattress speeds bed-making, and it has the advantage that when it is once in place, it stays put. Furthermore, simply putting a fitted bottom sheet on the mattress will stretch it tight enough to be smooth even without ironing. (Ironing does, of course, improve the sheet's appearance in the household linen closet.) Some fitted sheets are reversible; that is, there is no right or wrong side, and any way you put them on the bed will be right.

The matter of getting the right size for the mattress was one of the things which held up the development of fitted sheets. The first fitted sheets were marketed by Pacific Mills for a short time before World War II. Mattress sizes, unfortunately, were not generally standardized at that time, and a major manufacturing problem was to find a size that would be reasonably well adapted to various sizes of new mattresses and mattresses that had been used for a time. Mattress sizes are now pretty well standardized, and the woman who buys a fitted sheet for a double bed or a twin bed will likely find that she has one that will fit the mattress on which it is to be used.

Care of a fitted sheet is not difficult; it is easy to fold one, once the method has been mastered.

There are several suggested methods, but the illustration on page 16 shows one that seemed to CR's laboratory staff to be practical and simple. It will be noted that fitted sheets are smaller in size than the conventional sheets ordinarily sold for particular beds. Conventional sheets ("torn size") should be 81 inches wide and 108 inches long or 90 inches by 108 inches for a double bed, to provide at least 6 inches all around a double mattress. (The average double mattress today is about 75 inches long, 54 inches wide, and 6 inches thick.) Studies made at the Good Housekeeping Institute are reported to show that it actually required a few seconds more time to fold and iron a conventional sheet than to fold and iron a fitted sheet.

Fitted sheets, like flat sheets, are available in four different types, 200, 180, 140, and 128. Type numbers are based on the total thread count of the filling yarns plus the warp yarns in one square inch. Type 200 sheets are smooth, fine lightweight percale sheets; Type 180 lightweight sheets are sometimes called "utility percales"; Type 140, heavy-weight muslin; and Type 128, medium-weight muslin. A good quality sheet of any type will have smooth, even yarns and good, straight, selvage edges. Fuzzy, uneven yarns and loose weave with excessive sizing material added to give smooth and firm appearance to the fabric when new suggest low quality and a sheet that will be unsatisfactory after laundering.

The problem of choosing between muslin and percale sheets is usually decided on the basis of whether or not the finer weave and smoother feel of a percale sheet add enough comfort to make it worth the additional money. There is one other practical consideration for those who send their sheets to the laundry. If the laundry charges by weight, it may be as economical to use percale sheets because of their lighter weight and resultant lower cost of laundering. The American Hotel Association has estimated that a dozen 140 count flat sheets weigh about 22 pounds, whereas a dozen 180 count flat sheets weigh only about 18 pounds. This difference of 4 pounds amounts to a saving of about 20 cents in favor of a dozen 180 count percale sheets, assuming a laundry charge of 5 cents a pound.

The formal criterion for evaluating sheets is the American Standard which was approved by the American Standards Association in November 1948. At that time it was said that approximately one-quarter of the sheets and pillowcases on the market did not meet the American Standard, which included minimum requirements for

combined thread count, breaking strength in warp and filling directions, added sizing, and weight. It is interesting to note that sheet manufacturers have made a considerable improvement in their product since the standard was first adopted, for in the present test all of the sheets met the minimum requirements of the American Standard.

The standard does not include a provision for maximum shrinkage, which CR thinks is important, particularly for fitted sheets. Although some groups working in the field consider 3 percent a suitable maximum figure for shrinkage, CR's test showed that most manufacturers control the shrinkage of fitted sheets to within 2 percent, and that would seem a reasonable maximum shrinkage allowance. (This corresponds to about $1\frac{3}{4}$ inches in the length of a fitted sheet.)

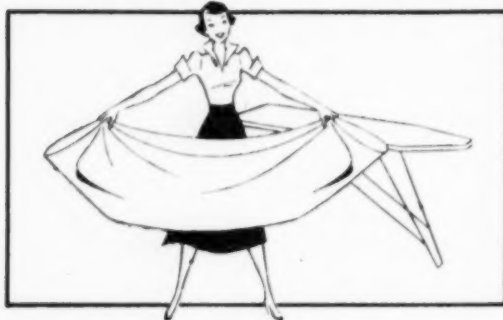
Some fitted sheets are *Sanforized*. This means that residual shrinkage (that is, the amount the sheet may be expected to shrink after purchase) should not exceed 1 percent and that tests to determine residual shrinkage have been checked and approved by the trademark owner, Cluett Peabody & Co., Inc. Sheets carrying the *Sanforized* label include *Pacific*, *Pepperell*, and *Wamsutta*.

The standards of the American Standards Association require that sheets of Type 140 meeting their specifications have a breaking strength in each direction of at least 70 pounds. Type 200 and Type 180 percale sheets should have a minimum breaking strength of 60 pounds in each direction, whereas Type 128 should have a minimum breaking strength of at least 55 pounds in each direction of the weave.

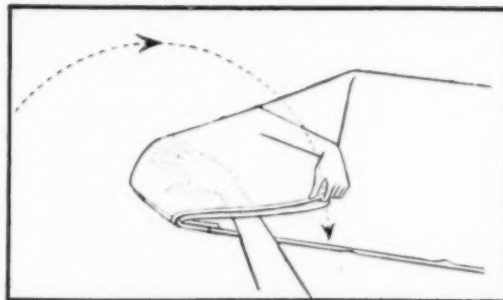
CR's tests, which included all the brands of fitted sheets available in several large department stores in two eastern states, included determination of thread count, breaking strength in two directions, percentage sizing, and shrinkage, following the American Standard where applicable. In addition, the breaking strength of the fitted corners was measured. This last test was made by the "grab method" which seemed to be most suitable for simulating the kind of stress given to the corners. It was found that the breaking strengths differed from point to point at the corners, possibly because the seam is made on a curve and thus the fabric is on the bias at some points, and is not at other points. The minimum strengths found seemed adequate, however, and all the sheets were judged to be satisfactory in this respect.

All the sheets tested met the American Standard for sheets of their type with respect to mini-

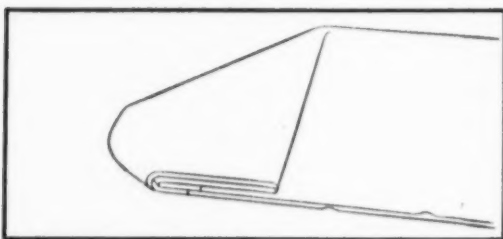
Here are six simple steps in folding a fitted sheet...



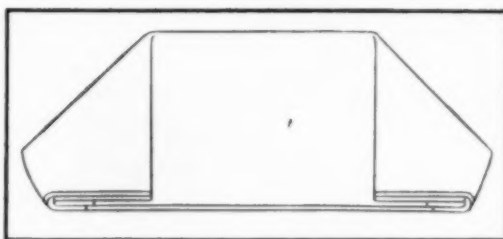
1. Fold sheet lengthwise once by bringing the two selvage edges together, allowing corners at both ends to hang loose. (Pockets should be right-side-out.)



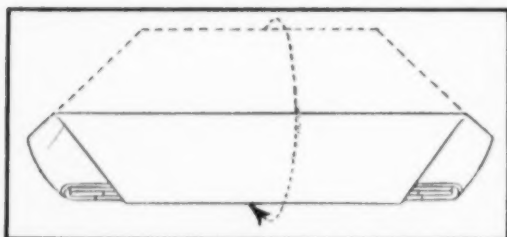
2. Place sheet on ironing board with selvage edges towards you. With left hand, pick up extreme left end of sheet, and with right hand push top pocket down into bottom pocket. Bring extreme left end of sheet over towards selvage edges (as indicated).



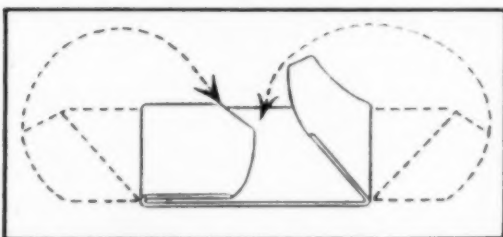
3. Left end of sheet now looks like this. To accomplish similar fold at other end of sheet, push top pocket into bottom pocket, fold, and smooth out as you did on left end of sheet.



4. Sheet now looks like this. (If you wish to iron your fitted sheets, press all flat surfaces.)



5. Fold sheet in half by bringing center fold over to selvage edges, as shown.



6. Fold both ends to middle, and fold in half again as many times as you wish.

Illustration courtesy Sanforized Division, Cluett, Peabody & Co., Inc.

imum breaking strength and maximum sizing. Ratings are based primarily on breaking strengths—the strongest sheets being judged superior be-

cause they will withstand repeated laundering, pulling, and tugging, and hanging on the line better than the weaker sheets.

A. Recommended

The following sheets were the four strongest ones tested.

Harmony House Best Muslin (Sears-Roebuck's Cat. No. 96-8060) Two for \$5.38, plus postage. Total thread count per square inch (warp plus filling

threads), 156. Average breaking strength, 83 lb. in warp direction and 86 lb. in filling direction. **2**

Lady Pepperell Superfine Muslin (Montgomery Ward's Cat. No. 16-3343; Pepperell Mfg. Co., Boston) Two for \$5.48, plus postage. Reversible. Total thread count, 156. Breaking strength, 82 lb. in warp direction and 87 lb. in filling direction. **2**

Springmaid Sumter (Spring Mills, 200 Church St., New York 13) \$2.79. Total thread count, 156. Breaking strength, 76 lb. in warp direction and 90 lb. in filling direction. **2**

Wamsutta Supercalc (Wamsutta Mills, New Bedford, Mass.) \$6.95. Total thread count, 220. Breaking strength, 79 lb. in warp direction and 89 lb. in filling direction. **3**

* * *

Pacific Truth Muslin (Pacific Mills, 1407 Broadway, New York 18) \$2.49. Total thread count, 136. Breaking strength, 75 lb. in warp direction and 70 lb. in filling direction. **1**

Harmony House Percalc (Sears-Roebuck's Cat. No. 96-8080) Two for \$5.98, plus postage. Total thread count, 192. Average breaking strength, 65 lb. in warp direction and 81 lb. in filling direction (out of balance; a more nearly equal breaking strength is more desirable). **2**

Lady Pepperell Combed Percalc (Montgomery Ward's Cat. No. 16-3345; Pepperell Mfg. Co.) Two for \$6.18, plus postage. Reversible. Total thread count, 200. Average breaking strength, 63 lb. in warp direction and 87 lb. in filling direction (out of balance). **2**

Pacific Extra Strength Muslin (Pacific Mills) \$2.98. Total thread count, 156. Breaking strength, 76 lb. in warp direction and 74 lb. in filling direction. **2**

Pacific Combed Percalc (Pacific Mills) \$3.49. Total thread count, 196. Breaking strength, 75 lb. in warp direction and 70 lb. in filling direction. **2**

Pequot Plus-Service (Naumkeag Steam Cotton Co., Pequot Mills, Salem, Mass.) \$2.98. Total thread

count, 148. Breaking strength, 76 lb. in warp direction and 73 lb. in filling direction. One sheet of those tested was marked "Salem." **2**

Springdale Combed Percalc (Spring Mills) \$3.19. Total thread count, 192. Breaking strength, 71 lb. in warp direction and 75 lb. in filling direction. **2**

B. Intermediate

Cannon Muslin (Cannon Mills, Inc., New York 13) \$2.19. Total thread count, 132. Breaking strength, 64 lb. in warp direction and 73 lb. in filling direction. **1**

Harmony House Muslin (Sears-Roebuck's Cat. No. 96-8020) Two for \$4.78, plus postage. Total thread count, 140. Breaking strength, 60 lb. in warp direction and 75 lb. in filling direction. **1**

Pepperell Red Label (Montgomery Ward's Cat. No. 16-3347; Pepperell Mfg. Co.) Two for \$4.98, plus postage. Reversible. Total thread count, 136. Breaking strength, 70 lb. in warp direction and 61 lb. in filling direction. **1**

Spring Knight (Spring Mills) \$2.49. Total thread count, 140. Breaking strength, 62 lb. in warp direction and 64 lb. in filling direction. Lowest breaking strength of all sheets tested. **1**

Cannon Combspun Percalc (Cannon Mills, Inc.) \$2.89. Total thread count, 196. Breaking strength, 67 lb. in warp direction and 70 lb. in filling direction. **2**

Pequot, Type 180 (Naumkeag Steam Cotton Co.) \$3.49. Total thread count, 192. Breaking strength, 69 lb. in warp direction and 62 lb. in filling direction. **2**

Off the Editor's Chest

(Continued from page 2)

to penalize thousands of innocent victims at will.

Last fall milk drivers in New York City struck for higher wages, not only cutting off milk on the home delivery basis but preventing any shipments from reaching stores and other outlets. Farmers, who cannot turn off their cows like a spigot, were obliged to dump their milk in ditches and drains, because there were not sufficient processing plants available to make up the ex-

cess supply into cheese and other milk products. Women and children stood in line for hours outside the few processing plants that had milk, in order to obtain a ration of two quarts of milk. At least one emergency shipment of milk to schools and hospitals was sabotaged when vandals poured kerosene over the load.

It should be noted that the pre-strike earnings of plant workers and drivers averaged \$82 to

\$115 a week, which is a long way from a starvation wage in any city or town in the U.S. The strike settlement provided a "package increase" of \$8.50 a week, and the price of milk went up a cent a quart to consumers to pay for the wage rise.

There have been other labor stoppages that threatened public welfare, including one of tug-boat workers which forced the captains of giant liners to take the enormous risk of docking their ships unassisted, on arrival in New York harbor; trainmen who reported sick on one heavily traveled railroad so that tens of thousands of commuters were delayed in, or prevented from, reaching their place of business; not to mention the garbage collectors who reported sick in a body one morning with the result that garbage and refuse cluttered the city's streets.

In the fall of 1953, a strike by maintenance workers of a gas and electric company in New Jersey was accompanied by tampering with gas mains in a number of cases that seriously endangered the lives and health of thousands of consumers. Gas and water mains were hooked up to flood the gas lines; a main gas valve between a high pressure line and a low pressure line in one section was shut off without any notice, permitting high pressure gas to get into residential lines so that flames shot to the ceiling when attempts were made to light kitchen ranges; in another locality the plugging of a regulator caused even the normally small pilot flames to leap as high as 12 inches, according to newspaper reports.

Although these strikes occasioned inconvenience and hardship and even grave danger to a great many people, the strike of the photoengravers in New York City against the newspapers, and the refusal of the other newspaper unions to cross the picket lines set up, forcing suspension of practically all New York papers, shocked not only New Yorkers but people throughout the country because of the serious implications involved in the forceful suppression of the most important means of communication in modern living by a small group of labor unions. The rights of the people to their customary sources of daily news have been long held to be a cherished ideal in this country. Furthermore, it has been pointed out that the labor union members who refused to cross the photoengravers' picket line themselves had signed contracts which they violated by their failure to show up for work, and these binding agreements were treated like the famous German "scrap of paper" of World War I.

The loss of their daily newspapers was felt

by many consumers to be more serious than being deprived of their day's supply of milk. The damage done to the "little people," such as news dealers, people looking for employment with the aid of want ads, those who might need to watch obituary notices to learn of the death of dear friends, and people whose livelihood depended on their keeping up with the news and market reports were all seriously affected. A contract, which when the ordinary citizen violates it calls for a court action and possibly a fine or jail sentence, is apparently a specially exempted document when a union chooses to violate it. As Editor and Publisher pointed out in an editorial on the subject:

By the simple expedient of a picket line, any newspaper union can suppress a newspaper or several newspapers if agreement is reached, as it was in New York, for all to observe the picket line. Is concerted action by union leaders to be tolerated as a supra-national government wreaking havoc on the trade and economy of a large city and declaring Constitutional guarantees suspended? It should not be.

The Sherman Anti-trust Act, which has been on the books for more than half a century, was passed by Congress as a means of dealing with monopoly and preventing restraint of trade. Political pressure, and the fear of the votes of "organized labor," however, succeeded in getting labor unions exempted from its provisions. The average consumer who has perhaps succumbed to skilful propaganda that his rights must be subordinated and that he must make sacrifices in order to help the "underprivileged" who belong to labor unions is beginning to take a dim view of the theory that there is something sacred about these totalitarian tactics of the bold and threatening leaders of powerful unions. He is beginning to ask why, if it is wrong to permit corporations to maintain monopoly control in certain fields, such monopoly control by labor unions over goods and services essential to his welfare should be tolerated and free from the restraints of the same law and the same heavy penalties for infractions.

It's high time that those who make and enforce our laws realize that consumers' interests should be given paramount consideration. They should provide the yardstick for regulating the flow of commerce and eliminating stoppage and interference with the orderly delivery of goods and services for *all* consumers—not just those who happen to be in the privileged position of organized wage workers possessed of contracts which they are free to honor or repudiate at will, as expediency may seem to warrant.



Silver Cleaners and Polishes

SILVER was among the first metals to find use among the primitive races, because it was found in the native state, and because it was attractive and tarnished slowly in the sulfur-free atmosphere of ancient times. Today, large amounts of silver are used for making coins, jewelry, tableware, ornaments, and a number of other items. As pure silver is too soft to wear well, it is generally hardened by alloying it with other metals. In the United States, "sterling silver" or "925 fine" contains 92.5 percent pure silver and 7.5 percent copper or some other metals for additional hardness, rigidity, and better wear resistance. Silverplate is made by applying a thin layer of pure silver of the desired thickness over some cheaper base metal.

Silver will retain its bright luster in either dry or moist air, but it is quickly tarnished when exposed to traces of hydrogen sulfide gas or when it comes in contact with certain sulfur-containing organic compounds, such as rubber, and the yolk of eggs. Tarnish can be removed from silverware by polishing with an abrasive, cleaning by chemical action, or cleaning by the electrolytic method.

Abrasive Polishes. A number of products are available in the form of powder, paste, or liquid

which will remove the tarnish and produce a bright or lustrous finish primarily by the action of fine abrasive particles. It is important to use a polish whose abrasive is a mild one, to minimize the removal of silver; moreover, if the abrasive is too coarse or harsh, it will leave scratches on fine polished surfaces which cannot be removed without new plating or repolishing with the proper fine abrasive. Continued use of too harsh an abrasive will wear the silver to a marked and noticeable extent. The abrasive used in polishes is usually a variety of silica or a silicate substance, such as diatomite (also called diatomaceous earth). While pure diatomite is considered a satisfactory abrasive for purposes of polishing silver pieces, the commercial material often contains coarser impurities of feldspar and quartz which will leave coarse scratches on silver rubbed with it.

Chemical Cleaners. These are mere cleaners or tarnish removers and do not polish the silver. Silver cleaners contain chemical substances which will dissolve tarnish. For many years, silver cleaners often contained sodium or potassium cyanide as the active material. Cyanides are exceedingly poisonous, and misuse of them can result in serious illness or death.

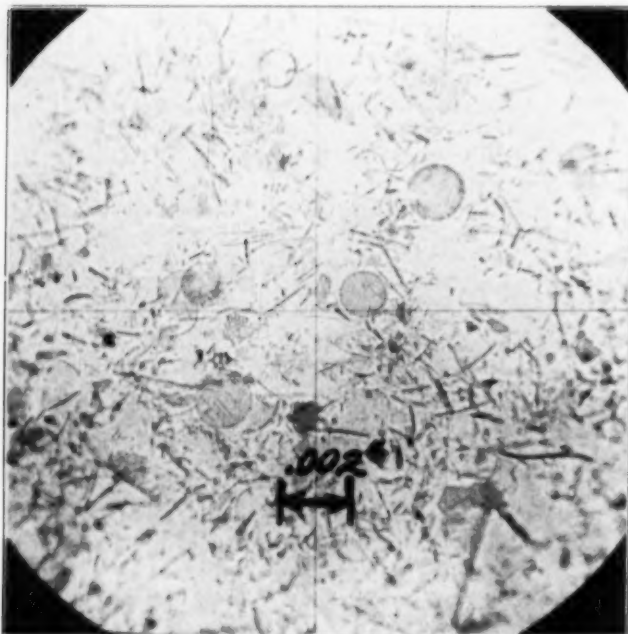
Under no circumstances should a cleaner containing a cyanide be used in the home. So deadly is this class of chemical that some states have passed legislation banning the sale of any silver cleaning or plating product which contains it.

More recently, cleaners containing thiourea as the active chemical have made their appearance. These are popularly known as the "dip-type" cleaners. Although these products are claimed to be non-poisonous, they should be handled with care since thiourea has been fully established to be a toxic chemical in connection with an attempt some years ago to use it in very small amounts in connection with foodstuffs, as a preservative. Though by no means in a class with the cyanides, it is important that cleaners containing thiourea be kept out of the reach of children at all times. (See CONSUMERS' RESEARCH BULLETIN, December 1952, for precautions in use and need for caution where children may have access to the bottle. Probably all metal polishes should, as a matter of precaution, be treated as potentially poisonous to some degree, and should not be left where youngsters would have access to them.)

Products which clean by chemical action work rapidly and are convenient to use, since they remove tarnish by the simple procedure of dipping the article into the solution, but they do not *polish* the metal. Pieces which are cleaned a number of times with a thiourea product will

be left with a somewhat dulled finish, and an occasional polishing operation with a mild abrasive polish will be necessary to restore the luster. Silver flatware or ornamental pieces which have the ornamental French gray or "oxidized" or black antiquing should not be cleaned with any of the chemical cleaners. Certain patterns of silver are grayed in manufacture with a substance which can be removed by cleaners containing a cyanide or acid cleaners containing thiourea, thus destroying the intended "oxidized" effect. Care should be taken, when using the latter, to avoid contact with anything that is made from stainless steel such as the blades of silver-handled steel knives or a stainless sink or countertop. Contact with porcelain-enamel, linoleum, and plastic should also be avoided because the thiourea cleaners contain a strong acid. There have been some complaints from users of thiourea cleaners that certain pieces of silver have taken on a dull, yellowed appearance. This can be removed either by redipping in the cleaner, followed by thorough rinsing, or by polishing with an abrasive polish. One explanation for this discoloration is that during the cleaning the sulfur-containing gas which is produced retarnishes the silver unless the silver is quickly and thoroughly rinsed after immersion.

In addition to being relatively easy and quick to use, dip-type cleaners have been found satisfactory from the standpoint of not causing ap-



Photomicrograph showing sample of the abrasives used in Wright's Silver Cream. This sample of Wright's contained relatively pure diatomite of good quality, uniformity, and size suitable for use in silver polishes.

preciable loss of the precious metal. The use of a dip-type cleaner (for silver with no French gray or oxidized areas), with due precautions to rinse quickly and thoroughly, and an occasional polishing with a mild abrasive will keep the silver lustrous and in good condition.

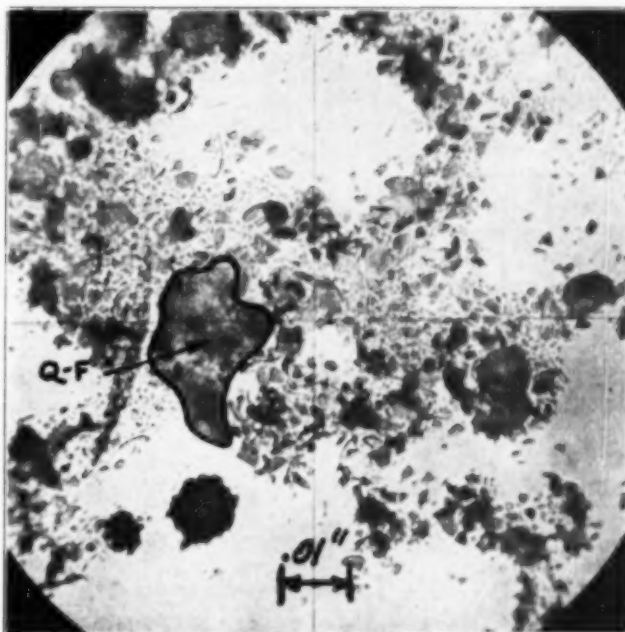
In addition to *Instant-Dip*, the following cleaners which have appeared on the market, although not tested by CR, have contained the chemical thiourea. They are included here for the convenience of subscribers in identifying the various dip-and-rinse-type cleaners which (according to Reader's Digest of October 1953) contain thiourea.

Beam, Chem-Clean, Cosmo, Dip-Away, Dip-Brite, Dip-Off, Dun Dee Dip, E-Z-Est Speedip, Easy-Aid, Elkay's Dip Off, Fuller Silver Cleaner, Harco Instant Silver Cleaner, Hygrade, Instant Silver Lustre, Kwik Silver, Magic Dip, Modern Silver Dip, Oz, Quick-Dip, Rokeach Silver Flash, Silva-Brite, Silver-Dip, Silver Flush, Silver Gleam, Stanhome Silver Cleaner, Sun-Glo, Super Dip, Waldorf, Wilbert's No-Rub.

Electrolytic Method. This method is a simple one for cleaning a number of pieces of silver at the same time, and the loss of silver is less than when polishing is done by use of an abrasive. The materials needed are a bright aluminum pan (or a piece of bright aluminum, zinc, or tin in an enamelware pan or tray), water, and a level teaspoonful of baking soda, trisodium

phosphate, or tetrasodium pyrophosphate, or two teaspoonfuls of ordinary table salt, for each quart of water. The solution should be hot, preferably just below boiling, and the silver to be cleaned should be placed in the pan so each piece either touches the bright aluminum (or zinc or tin) or touches another piece of silver which is in contact with it. Care should be taken not to do too many pieces at a time. To avoid the appearance of black spots, which must be removed with the use of an abrasive, the silver should not be left in the solution beyond the time necessary for the removal of the tarnish. Silver cleaned by the electrolytic method should be rinsed very thoroughly with hot water after the treatment to remove all the alkaline salts used in the cleaning bath; otherwise it will tarnish more rapidly than usual. As with the popular chemical cleaners, this method does not polish the silver, and occasional polishing with a mild abrasive polish will be necessary. Silver pieces which have the ornamental French gray or black antiquing should not be cleaned by this method, and if it is used with pieces made of parts that may be held together or weighted by cement, such as hollow handles or pearl handles, special care must be exercised to avoid softening the cement, which will occur if the tarnish-removing solution is too hot. (The same precautions apply to cream pitchers, etc., which often contain a filler or weighting material within

Photomicrograph showing sample of the abrasives used in Silver Snow. This sample of Silver Snow contained volcanic dust particles, coarse quartz, and feldspar, along with diatomite. These coarse particles can be seen in the photomicrograph even though the magnification is about 1/4 that used for the specimen of Wright's.





A few of the products which contain the chemical thionurea.

the hollow base.) Electrolytic cleaning may also be done with *Touch-O*, which sells for \$1.50, a device containing a small battery. While this device has the advantage that the cleaning can be done in warm or cold water solutions, battery replacements, at about 10 cents, will be required from time to time. This method, too, should not be used to clean silver with oxidized patterns.

Silverware in everyday use can be kept free from tarnish simply by placing a leaf-shaped piece of metal, sold under the name of *Magic Leaf*, in the dishpan or sink (the pan should not be of aluminum) each time the dishes and silverware are washed in a solution of synthetic detergent, such as *Breeze*, *Surf*, *Tide*, *Vel*, etc. Made of a magnesium alloy, *Magic Leaf* removes the tarnish from any piece of silverware which it touches. With this variant of the electrolytic method, also, occasional polishing with a regular silver polish of the abrasive type will be necessary to bring up the luster. The comment applying to the removal of gray tones by the electrolytic method applies here, too. Stainless steel should not touch silver for long periods in such a bath for, if it does, some corrosion of the stainless steel is likely to take place.

Storing Silver. If silver pieces are not used often, they may be stored in tarnishproof chests or in a wrap of specially treated cloth. One such cloth, *Pacific Silver Cloth*, consists of a soft beaver-brown flannel impregnated with a silver compound that reacts with the gases in the air that cause tarnishing. The cloth is available in rolls for flatware, bags of varying sizes, and by the yardage. When storing this cloth, it would be well to keep it in a sealed envelope or bag of cellophane, *Pliofilm*, *Saran*, or waxed paper to reduce access of the air and thus maintain its effectiveness. If convenient, "silver cloth" in which silver has been wrapped may also be enclosed to advantage in a similar manner.

Ratings. The products rated are abrasive polishes and are rated on the basis of a petro-

grapher's examination to determine the kind of abrasive present, with respect to its suitability for use on silverware.

All the polishes given below except one powder and an abrasive-impregnated cloth were suspensions in liquid, or were moist pastes; in past tests there have been more dry powders. Probably there is a trend away from the dry powder type of abrasive polish, and certainly a damp paste or suspension in liquid is a more convenient form to use. A very fluid suspension has the advantage that the coarser particles may quickly settle out, whereas with a thick suspension, the smallest coarse particles will still stay up in the liquid. (The more fluid suspension, however, has the disadvantage that with it one is pretty sure to be buying more liquid and less of the effective abrasive material.) The fluid vehicle in some of the polishes was found to be water, usually perfumed and colored with a dye or ammoniated. In some others, it was a type of soapy material, and in two a combustible liquid.

Subscribers desiring additional information on *Touch-O*, *Magic Leaf*, and *Pacific Silver Cloth* should refer to the June 1952, July 1953, and October 1953 CONSUMERS' RESEARCH BULLETINS, respectively.

A. Recommended

Polishes listed under *A. Recommended* contained diatomite—some coarser than others—but all were sufficiently fine textured that they were considered satisfactory for cleaning and polishing silver.

Baker's Instantaneous (C. P. Baker & Co., 503-505 N. 11 St., Philadelphia) 10-oz. jar, 60c. A white abrasive paste.

DuPont (E. I. DuPont de Nemours & Co., Inc., Wilmington, Del.) 8-oz. bottle, 98c. Liquid. Labeled "Caution: Combustible Mixture." Sample tested by CR was not found to burn or to support combustion.

Electro Silicon Cream (Electro Silicon Sales Co., Brooklyn, N.Y.) 1-lb. jar, 49c. Paste.

Gorham (The Gorham Co., Providence, R.I.) 8-oz. jar, 23c. Paste.

International (The International Silver Co., Meriden, Conn.) 16-oz. bottle, \$1. A pink liquid.

JNT (J.N.T. Mfg. Co., Inc., New York City) 8-fl.-oz. can, 59c. Liquid.

Silverfleece (Earl Products Co., Chappagua, N.Y.) 5-oz. jar, \$1.19. Cloth impregnated with diatomite. Labeled "Caution Combustible Mixture." There might be some hazard in careless use of this product.

Welmaid (Welmaid Mfg. Corp., Chicago) 8-fl.-oz. bottle, 50c. Liquid.

Wright's Cream (J. A. Wright & Co., Keene, N.H.)
8-oz. jar, 22c. Cream.

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The abrasive used in the following two silver polishes was found to be slightly harsher than that used in the products listed above; they are, therefore, considered less desirable.

Magic Silver and Pewter (The Magic Polish Co., Inc., N.Y.C.) 1-pt. can, 55c. Liquid. Contained

very fine silicate material and some coarser grains, including quartz, likely to scratch silver.

Noxon (Noxon, Inc., Jersey City, N.J.) 8-fl.-oz. bottle, 23c. Liquid. See comment under *Magic*.

C. Not Recommended

Silver Snow (Welmaid Mfg. Corp.) 2-oz. pasteboard container, 25c. Powder. Contained a mixture of thin fragments of volcanic glass and rock minerals with diatomite.

Priming Coat for House Painting

A SUBSCRIBER has recently raised the question of whether regular house paint or an aluminum paint should be used as an undercoat for a house which has not been painted for about eight years. Expert opinion is to the effect that aluminum house paint can be strongly recommended for a priming coat for the first paint job on certain woods, and that aluminum house paint has been successful in this use for nearly 20 years. It is seldom recommended for repainting previously painted surfaces.

It is important that the paint used should be an *aluminum house paint*, for there are a number of other types of aluminum paints that are not suitable for this purpose. The reason is that the vehicle in aluminum house paint is entirely or chiefly linseed oil, not spar varnish. It is not safe to depend upon the advice of painters and paint dealers on the use of aluminum priming coats, for they are often confused or doubtful about the desirability of using aluminum paint. The difficulty arises because they have often seen aluminum paint used in places where some other corrective measure was really needed, and because too often the aluminum paint employed was of the wrong kind.

Aluminum paint priming may be successful on old buildings which have been painted previously, provided the previous paint was very well worn out before the new painting was started. This will rarely be the case, and when it is not,

it is best to continue with the paint used previously, if it is one that gave good performance. Switching from one type of paint to another is always risky, and should never be done if good service was achieved with the paint previously employed.

The Forest Products Laboratory has prepared a bulletin entitled *Wood Properties and Paint Durability*, which is available from the Superintendent of Documents, Washington, D.C., at 10 cents (Miscellaneous Publication No. 629), which tells about the suitability of various species of wood for the common types of house and barn paints. Aluminum first coat or priming paint is desirable on woods that have wide bands of summerwood, such as southern yellow pine. Other such woods are: white fir, the hemlocks, ponderosa pine, spruces, Douglas fir, and western larch. It is interesting to note that home owners could save a good deal of money in the long run if they were to use dark rather than light-colored paints, for dark colored paints of good quality are likely to last two or three years longer on such woods than paints of white or light color. When repainting, use only the white or colored paint; as a rule, one should not apply a fresh coat of the aluminum priming paint. Even the best white paint will stand up only about one-half as long as a durable dark red barn paint, according to a release published some years ago by the Department of Agriculture.

Automatic Heating Controls

Editor's Note: *The subject of controls for automatic heating equipment is highly complex, and to discuss it in any sort of detail would require the compass of a large book rather than the brief space available for an article in this Bulletin. While the following article should help the consumer understand the subject better, it is not intended that he should attempt to substitute his own necessarily very limited knowledge and skill for the services of a qualified serviceman familiar with the design of a particular home heating system. Anyone who owns an automatic heating plant of any sort should, without fail, arrange to have the boiler and furnace equipment carefully checked at least once a year. The checking should not be done by just any available serviceman, but by one known to be skilled in the care and adjustment of the particular make of oil burner, stoker, or gas heater in question.*

Automatic controls do a remarkable job of operating the heating system and protecting it against the more foreseeable hazards of incorrect functioning, fire, explosion, etc., but like all complicated devices, they are subject to failure and breakdown. With any automatic heater, there are a number of types of failure that can be serious, either in causing a complete shutdown of heat in severe weather, or perhaps even in setting the home on fire or causing a disastrous explosion. No consumer should assume that he can leave his home completely unattended (i.e., over a week end or during a vacation) with full assurance that everything will operate properly and safely during his absence. The chief engineer of one large company manufacturing heating controls has stated that he would under no circumstances leave his home for several days without making provision for a daily check of his heating system by a neighbor or friend, to see that it continues in operation, and that everything seems to be normal, and free from unusual odors or abnormally high or low temperature. In summer, of course, when heat is not needed in the house, an oil burner that may be supplying domestic hot water should be shut down completely during any extended absence from home by opening the switches at the junction boxes feeding the burner and circulator.

ALTHOUGH the automatic controls used on various types of heating plants burning coal, oil, gas, or using electricity, are quite different in detail, there is a basic underlying pattern which should be understood by every consumer interested in the proper and economical operation of a heating system. An understanding of the problem and the common factors will help the user to anticipate trouble before it has had a chance to develop, and may save money by rendering some service calls unnecessary.

Thermostats

The basic control of all domestic automatic heating systems is, of course, the familiar room thermostat. The location of a thermostat is one of the most important factors in proper performance of its function, and many serious difficulties with heating of homes stem directly from disregard of this point in the original installation.

The best location for the thermostat in a home is usually 3½ to 5 feet above the floor on an inside wall of the living room or dining room, in a place where there is a free circulation of air

but not close to any outside door. (Drafts from such a door would frequently interfere with burner regulation.)

A thermostat should not be exposed to a hot or cold draft, or to direct air flow up or down a stairway, or from warm-air registers, radiators, fireplaces; it should not receive the direct rays of the sun, and should not be mounted on an outside wall or on a wall containing hot or cold pipes, ducts, or a chimney. A thermostat should not be located above or behind a large piece of furniture or behind an open door or in any place where a radiator or portable electric heater will be used. Do not place a lamp, an electrical appliance, radio, or television receiver near a thermostat as any such source of heat can interfere drastically with the operation of a heating system.

While plain thermostats are usually offered as standard equipment, there are many who are now installing a thermostat with a clock arrangement which permits reduction of the temperatures at night by several degrees, with automatic restoration of normal temperature at

some early hour in the morning. These cost at least twice as much as the ordinary thermostat, which sells for about \$12 to \$14. There is actually considerable uncertainty as to the economy to be effected by lowering the temperature at night, and in many cases, there will be no saving at all. This is a surprising result, but information available to CR indicates that the actual saving will vary over a rather wide range from a minimum of close to zero in a tightly constructed and sheltered house, such as a house built in a row, as in some cities, or one of high heat storage capacity, to a maximum which may be as high as 10 percent in a fully exposed house of low heat storage capacity.

Some consumers consider that it is worth while to have uniform temperatures day and night throughout the house and that it is not worth while losing this advantage in order to make a small saving in fuel consumption by use of a clock thermostat to lower room temperatures during the night. Others who do not open bedroom windows or close the bedroom door and shut off heat from that room at night may wish to make use of a clock thermostat to lower the house temperature a few degrees at night.

A very common misuse of a thermostat which arises from a misunderstanding of how it operates is that Mr. or Mrs. Homeowner will push the temperature lever or dial to its highest point when quick heat is required, or vice versa. This is ill-advised. The thermostat is merely a make-and-break switch; it can only say "yes" or "no," "warmer" or "colder," not "warm up faster—or slower," and it will operate correctly if it is simply set to the temperature desired. To push the indicator all the way to the top of the scale will not bring the heat up any faster; it will simply produce an above-normal temperature before one remembers to set the lever back to the desired room temperature again, and if it happens that one should leave the house without remembering that the thermostat was set at the highest temperature, the extra-high temperature may continue for many hours or even days with great cost of wasted fuel; as will be explained later, such an occurrence might involve some extra risk of setting fire to the house.

A room thermostat is, on the whole, a reliable and effective device, and if properly used, will usually give very little trouble over a period of years. If there is reason to suspect the action of the thermostat on a steam or warm-air system, the thermostat can be tested in a rough way by moving the temperature indicator lever to its highest mark when it is not calling for heat. This should immediately start the oil burner, gas burner, or stoker, unless the burner has been shut

off by the high-limit control (except that with an oil burner, there will be a delay time, usually not exceeding 2 minutes, which is provided for in the design to allow for the passage of the hot oil vapor from the combustion chamber and out of the chimney before the ignition is turned on again). Return of the indicating lever to a temperature somewhat below room temperature should stop the burner unless (as occurs in the case of a stoker) it is being operated on one of its time cycles and happens to be at the "hold fire" time period, which is an arrangement introduced to prevent a stoker fire going out entirely in case there is no call for heat for a long time. On forced-hot-water systems, moving the thermostat up and down should stop and start the circulator, and may or may not start the burner, depending on the temperature of the water in the boiler.

High-Limit Controls

Next to the room thermostat, the most important control is the high-limit control. This functions as a safety device to prevent excessive temperatures or pressures in case the thermostat should stick or is used carelessly or by error in such a way that would call for too high a temperature for too long a period, or produce some other condition which under unfavorable circumstances might raise the furnace or boiler to a dangerous temperature or pressure, or cause overheating of the smokestack. (An oil burner or other heating system may be safe under normal conditions and yet cause a fire if these conditions are exceeded through some maladjustment or accident. The margins between safety and danger are often small, and it is therefore wise to avoid the possibility of accidental overheating of the house, on general principles.) The exact conditions which may produce danger of overheating can never be entirely anticipated; even a door or window in the room in which the thermostat is mounted accidentally left open, or broken or blown open on a cold day, might very possibly cause the thermostat to continue to call for heat long after the heater had reached the desired temperature or pressure limit. (Since any burner control may fail, it is unwise to take unnecessary chances by setting up conditions which could involve an added element of danger.) To guard against some of the occurrences which may involve fire hazard, it is standard practice to install a high-limit control which runs in conjunction with the thermostat or with the burner power supply to shut off any automatic burner when it has done all it can do safely, regardless of whether the thermostat still calls for heat or not. The pressure limit control or the temperature limit control

shuts off the burner when the boiler reaches a pre-set maximum pressure or temperature. Warm-air controls provide the same protection at a maximum air temperature as usually measured in the top or bonnet of the furnace. A hot-water control, sometimes carelessly termed an "aquastat" (actually a trademarked name owned by Minneapolis-Honeywell Regulator Co.), cuts off the burner or stoker when the water temperature reaches a predetermined temperature. Hot-water limit controls are available in a clamp-on type which straps to a hot pipe, or an immersion type which has an element immersed in the water of the heating boiler. While the latter is apt to be the more accurate in its control, the clamp-on type of limit control will serve if strapped *tightly* to a hot-water main as *close as possible* to the heating boiler.

Like thermostats, high-limit controls are usually very dependable for long periods of time. They can be tested mechanically by pushing the room thermostat up to the maximum reading, to insure burner operation, and then turning the high-limit control back to its minimum setting. If the burner has operated long enough to bring the pressure or temperature above the minimum setting, the burner should stop immediately; if it does not, the limit control is not installed correctly or is not functioning properly. The burner in any case should shut off at a temperature or pressure close to the point at which the limit control is set. If it fails to do this, stop the burner at the main switch; call a serviceman without starting the burner again. (One must, of course, be sure to return the thermostat to the normal room temperature setting at the end of such a test.)

Burner Controls

The third and last of the really basic automatic controls is the primary burner control or valve which actually stops or starts the burner. In the case of a coal stoker, this function is performed by a relay which applies full line voltage to the stoker motor in response to a low-voltage signal received from the room thermostat. (There are room thermostats that work on line voltage—110-125 volts—but low voltage alternating current—24 volts usually—is preferred for such units because of the greater safety and simplification of wiring.) In oil burner hookups, a primary control is used to provide the proper coordination between ignition and burner motor operation. In gas burners the main control consists of a gas valve to regulate the flow of fuel to the burner. These controls will be discussed more fully under the specific equipment involved.

Supplementary Controls

In forced hot-water heating, the room thermostat customarily works through a relay to turn the circulator on and off. This is the only function of the thermostat in such a system. Further control of the heater is by limit controls which work to maintain a supply of hot water at the proper temperature upon which the circulating system can draw.

In some parts of the country it is a very common practice to use the heating boiler as a means of supplying domestic hot water through a water heater attachment. In some installations, the water heated in this manner is stored in a tank for use in the bathroom or kitchen. Frequently, however, a "tankless" heater is used without a storage tank, and a heavy and continued withdrawal of hot water may reduce the temperature in the boiler to the point where operation of the circulator would result in ineffective heating of the house and in failure of the system to supply sufficient hot water for domestic use. In such installations, it is common practice to include a "reverse-acting" hot-water limit control which prevents the circulator from operating until the temperature of the water in the boiler is high enough for both heating of the house and heating of domestic hot water.

On an oil or gas burner, *two separate high-limit controls, operating in series*, can advantageously be installed, to provide additional safety, so that if one sticks or makes an "unreasonable demand" for heat, the second will go into action to prevent development of a dangerous temperature or pressure. Check your burner circuit; it very possibly doesn't have the two high-temperature or high-pressure limit controls. If it does not, you might take up with your plumber or heating contractor the addition of a second unit to cut off the burner, even if it is a duplicate of one already installed. The second high-limit control, which must be *in series* with the first, will go into action to stop burner operation in any case where the first control may have failed, through sticking of corroded or worn contacts, perhaps, or through breakage of a part.

A supplementary control, highly recommended on all *steam* systems and mandatory on all large ones, is the low-water cutoff. This is merely a switch (in series with the high-limit control) which shuts the burner off if the water level in the boiler falls below the point of safety. A very important point to remember in this same connection is that, if the water in a steam boiler drops below the bottom of the gauge glass for any reason, the householder should *never*

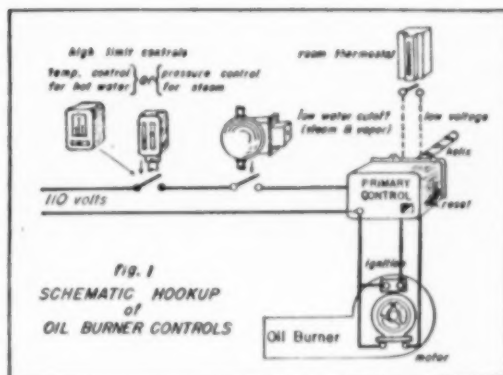
attempt to refill the boiler with the burner running or while the boiler is hot. To do so is to invite a badly cracked boiler or even a disastrous explosion. Always turn the burner off and, regardless of inconvenience or discomfort due to lower temperature in the house, wait for the boiler to cool down. Then, and only then, add water sufficient to bring the level to the middle of the gauge glass.

There is a much greater amount of water in a hot-water heating system than in a steam system, and on that account, the likelihood of the system's running dry is rather remote. If, however, this should happen because of a sudden leak or some other cause, the same precaution applies as to not adding water while the boiler and furnace are hot.

Oil Burner Controls

As is shown in Figure 1, the basic oil burner control circuit includes a room thermostat, at least one high-limit switch for hot water, steam, or air, a low water cutoff, for steam only, and a main burner operating or "primary" control.

The oil burner primary control is really the heart of the oil burner control system. When called upon by the room thermostat or other operating control, it starts and stops the ignition and the burner motor and pump in the proper sequence. The control is so designed as to make a "safety shut-down" if the oil should fail to ignite for any reason during the starting cycle. This is to prevent ignition of oil that may have accumulated in the combustion chamber, which could cause grave danger of fire or explosion. (Unfortunately this control will not prevent one type of occurrence which can cause accumulation of oil under dangerous conditions: namely that in which the nozzle has become partially plugged and there is some burning and some spraying of unburned oil going on at the same time. In this case, dangerous quantities of unburned oil can accumulate, to be fired later with great risk of serious overheating or explosion if the system comes back to normal and the firebox heats up fully. A photoelectric-cell-and-relay device will shut down the furnace in case of this type of flame failure. This equipment is available for domestic burners and some manufacturers supply it as optional equipment, but the flow of oil to the burner should be stopped also by the primary control if the flame goes out during a burner operating period. If the power goes off for a time, the burner will also stop, and when power is restored, the primary control should start the burner in the proper ignition-oil-flow sequence.



The oil burner primary control is a complicated device whose action and details cannot be followed by a person not familiar with the problem through study and experience. Some manufacturers have arrangements with their dealers whereby primary controls can be factory exchanged for similar models rebuilt at materially reduced prices (usually at about one-half price). Since a burner with a defective primary control is in a dangerous condition (in some instances it may fail to operate at all, of course), this control should be checked by a fully qualified serviceman.

Testing Ignition Timing (intermittent ignition types only). Stop the burner for a minute or so by opening the line switch, then start. With the cover removed from the primary control, usually located on and fastened to the smoke pipe, note the length of time for the ignition relay to operate to stop ignition. This is the ignition timing. Means of adjustment are usually provided so that a well-trained oil burner serviceman can alter the time if it is too short.

* * *

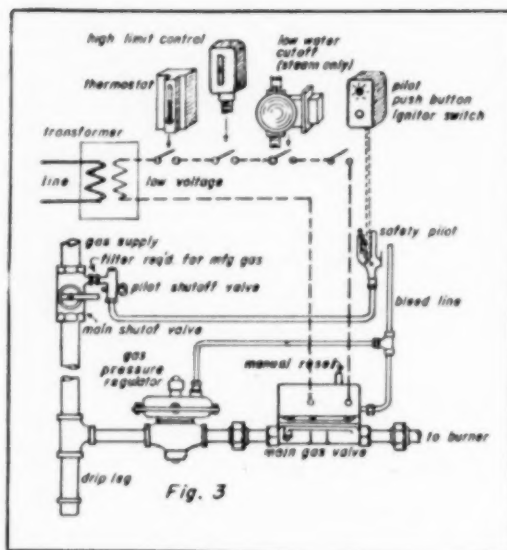
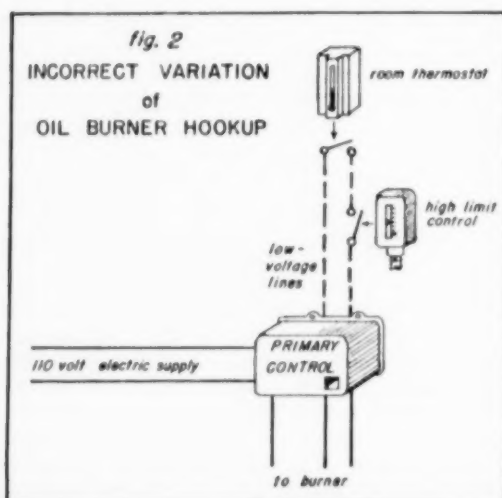
A common practice, contrary to Underwriters' regulations, in connecting oil burner controls which has caused much trouble (noted particularly in Philadelphia and Baltimore) is to place the limit control in series with the thermostat on the low-voltage side of the primary control (see Figure 2) instead of directly in the "hot" side of the 110-volt line, as is correct (see Figure 1). The result is that if the primary control relay sticks, and it sometimes does, particularly when old, all controls become inopera-

tive; as a result the burner will run continuously, which can always create a dangerous situation. As the saving to the installer is small and is only the difference in cost of certain electrical connections, it can be assumed that this practice arises from the contractor's ignorance of the consequences of the electrician's incorrect wiring.

A low-water cutoff on a steam boiler should be connected in the way just described—in series with the limit control on the "live" side of the 110-volt circuit.

Gas Burner Controls

Because of the potential hazards connected with the accidental escape of gas into the house or the accumulation of unburned gas in the furnace, there must be completely automatic control of ignition in burning gas. American Gas Association listings require the following minimum equipment to be supplied with all domestic gas fired central heating appliances: automatic pilot, automatic gas-control valve including transformer if necessary, gas pressure regulator (except for liquefied petroleum—bottled-gas), manual shutoff valve, manual pilot shutoff valve, and bleed line from diaphragm valves and pressure regulator to the combustion chamber. Even this array does not complete the list necessary for proper operation, which should also include: room thermostat, high-limit safety control, low water cutoff (required only with steam). The low water cutoff is sometimes omitted because it is not made a matter of compulsion by regulations; it is desirable to check its presence and operation when purchasing or installing a burner.



Typical control arrangement for gas burners.

A typical gas burner control arrangement is shown in Figure 3. In general, electricity fed through the several series-connected controls actuates a main gas valve which feeds the burner. Ignition is obtained from a constantly burning safety pilot, so named because it incorporates a small temperature-sensitive element which acts to break the circuit to shut off the main gas valve or to close a separate shutoff valve if this element cools off through extinction of the pilot light.

Actually the wiring in Figure 3 follows the general pattern for solenoid valves. With diaphragm valves the same general idea is maintained, but the external wiring may be somewhat different.

With a gas burner, it is usually permissible to locate the high-limit safety control and the low-water cutoff on the low-voltage side of the line.

Main Gas Valves

Two types of main gas valves are in predominant use, solenoid and diaphragm valves (see Figure 4). The solenoid type is found on a vast majority of burners for the reason that it is cheaper and more compact. Diaphragm valves are considered more desirable in every other respect.

Basically, a solenoid valve consists of an electric coil which raises a valve stem to open the valve when current is applied; closing is by gravity or through a light spring attached to the stem. All gas is likely to contain slight

amounts of gummy materials at times; to this the rather delicately balanced valve stem is particularly vulnerable. A common failure of solenoid valves thus occurs when this gum periodically accumulates to interfere with the free movement of the valve. For this reason, solenoid valves have been outlawed in Philadelphia, but, as has been stated, they are in common use wherever local regulations or lack of regulations permit.

The operation and servicing of gas valves and controls is so complex that they cannot advantageously be discussed here in detail. Only fully qualified servicemen should attempt to service gas-burning equipment.

Diaphragm valves have the advantage of a somewhat delayed opening and closing, due to a gradual build-up of the operating differential. This acts to reduce the popping noise of the burner which is sometimes objectionable with the quicker operating solenoid valves.

Pressure Regulator

A gas pressure regulator mounted ahead of the main valve evens out the inevitable fluctuations in the line pressure of manufactured, mixed, and natural gas; with bottled gas it is mounted near the bottle or tank.

Hand Operation

In areas subject to even infrequent power failure, it is important to know that most gas installations, when properly equipped, can be operated manually, without electricity. (Several manufacturers have gas systems that are independent of the outside power supply; in this, ingenious provision is made for the supply of necessary current for operation of the thermostat and control valve by a thermopile generator placed in the fire.) In using any electric system equipped for manual operation, it will be wise to keep a close watch over furnace temperatures and pressures for the entire time that the burner is being controlled by hand and without automatic devices.

An automatic pushbutton pilot ignitor is also recommended as a convenience to fully automatic operation.

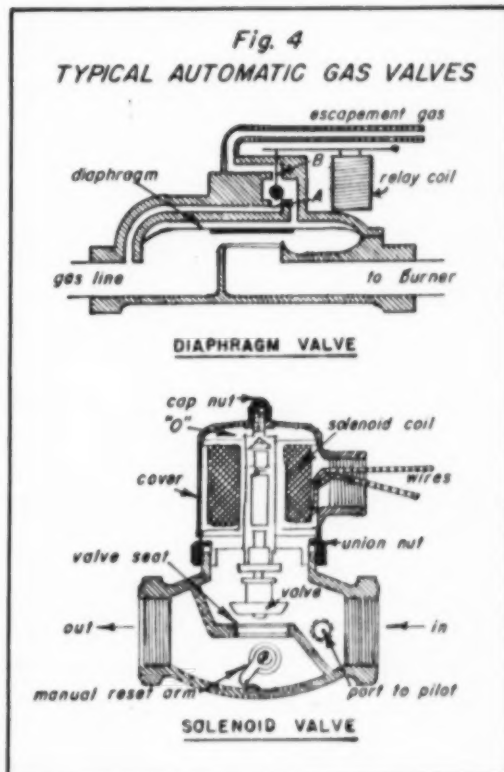
Stoker Controls

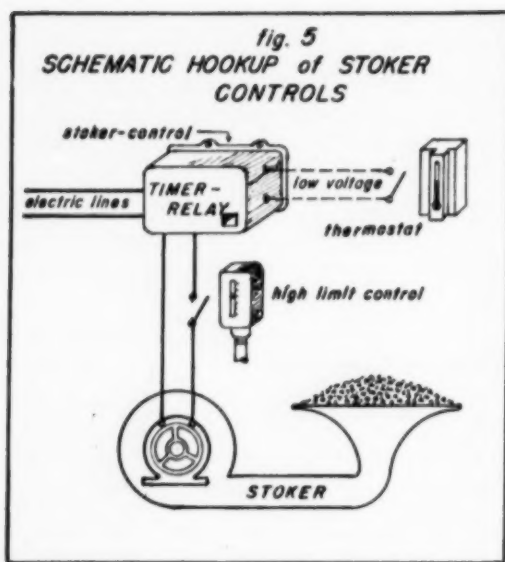
Stoker controls are simple because no pilot burner is needed, and the main controls are limited to a thermostat and a high-limit safety switch. Provision is also made for maintaining the fire at a minimum burning rate so that it will not go out for lack of coal during periods of mild weather when the thermostat does not

call for heat for long periods. There are several ways of doing this: With one, the stoker runs a predetermined number of minutes out of each hour; another runs the stoker whenever the stack temperature falls below a certain figure. Another control is an "outfire" which is sometimes provided; this prevents operation when the furnace temperature falls to a temperature which indicates the fire is out. (A stoker can be damaged if the worm continues to feed unburned coal when the fire is no longer burning.)

General Comments

Controls can be expected to provide a safe and uniformly heated home if they are correctly chosen and installed and if the burner (whether for oil, gas, or coal) is properly proportioned to the house and if the fuel is reasonably near right. Controls are sometimes blamed for faults which are inherent in other parts of the system. For example, the tendency to cut the oil feed of high-pressure gun-type oil burners





below the practical minimum of 1 gallon per hour so as to adapt the burner to a small home is a common cause of trouble. This often causes stoppage of oil flow, due to clogging of very small ports in a burner. Another is the use of a larger burner than is needed. This produces unsuitably short cycling periods with waste of fuel, and soot production, and unduly wide variations in operating temperature.

Acknowledgments

Consumers' Research, Inc., acknowledges with thanks the assistance of the following in the

preparation of this article and in some cases for basic diagrams which led to the several illustrations: Minneapolis-Honeywell Regulator Co., General Electric Co., The Mercoid Corp., Perfex Corp., White-Rodgers Electric Co., and Thermotrol Corp.

A. Recommended

The following controls are recommended as seven makes regarded as having good design and workmanship. They should be installed in accordance with the manufacturer's recommendation as to component parts with the particular kind of heating system involved. The names are given as a guide to manufacturers of successful heating system control units, and do not represent the results of tests of individual controls of the manufacturers' lines.

Barber-Colman (Barber-Colman Co., Rockford, Ill.)

GE (General Electric Co., Wall St., Morrison, Ill.)

General Controls (General Controls Co., 801 Allen Ave., Glendale 1, Calif.)

Mercoid Automatic Controls (The Mercoid Corp., 4201 Belmont Ave., Chicago 41)

Minneapolis-Honeywell (Minneapolis-Honeywell Regulator Co., Minneapolis)

Perfex (Perfex Controls Div., Perfex Corp., 500 W. Oklahoma Ave., Milwaukee 7)

White-Rodgers (White-Rodgers Electric Co., 1209 Cass Ave., St. Louis 6)

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† indicates that listings of names or brands are included.

Ratings of Motion Pictures

THIS section aims to give critical consumers a digest of opinion from a wide range of motion picture reviews, including the motion picture trade press, leading newspapers and magazines — some 19 different periodicals in all. The motion picture ratings which follow thus do not represent the judgment of a single person, but are based on an analysis of critics' reviews.

The sources of the reviews are:

Box Office, Cue, Daily News (N.Y.), The Exhibitor, The Film Journal, Harrison's Reports, Joint Estimates of Current Motion Pictures, Motion Picture Herald, National Legion of Decency, Newsweek, New York Herald Tribune, New York Times, New York World-Telegram & Sun, Parents' Magazine, Release of the D.A.R., Preview Committee, Reviews and Ratings by the Protestant Motion Picture Council, Time, Variety (weekly), Weekly Guide to Selected Motion Pictures (National Board of Review of Motion Pictures, Inc.).

The figures preceding the title of the picture indicate the number of critics who have been judged to rate the film A (recommended), B (intermediate), or C (not recommended) on its entertainment values.

Audience suitability is indicated by "A" for adults, "Y" for young people (14-18), and "C" for children, at the end of each line.

Descriptive abbreviations are as follows:

adv—adventure	mel—melodrama
biog—biography	mus—musical
c—in color (Technicolor, Cinecolor, Trucolor, Magnacolor, Vitacolor, etc.)	mys—mystery
car—cartoon	nov—dramatization of a novel
com—comedy	rom—romance
cri—crime and capture of criminals	sci—science fiction
doc—documentary	soc—social problem drama
dr—drama	trap—travelogue
fan—fantasy	war—dealing with the lives of people in wartime
hist—founded on historical incident	wes—western

A	B	C	
—	8	1	Abbott and Costello Meet Dr. Jekyll and Mr. Hyde... com AY
—	3	4	Act of Love... war-dr A
2	12	4	Actress, The... dr A
—	3	2	Affair in Monte Carlo (British)... dr-c A
—	1	2	Affairs of Messalina, The (Italian)... hist-dr A
—	10	1	All American, The... dr AY
1	5	2	All the Brothers Were Valiant... adv-c A
—	2	3	Annapurna... doc-c A
—	1	11	Appointment in Honduras... mel-c A
—	5	4	Back to God's Country... mel-c A
—	1	3	Bad for Each Other... dr A
8	9	—	Band Wagon, The... mus-com-c A
—	5	3	Bandits of the West... wes AY
4	11	4	Beggar's Opera, The (British)... mus-dr-c A
—	3	3	Beneath the 12-Mile Reef... mel-c A
1	12	3	Big Heat, The... cri-mel A
—	9	2	Big Leaguer, The... dr AY
—	3	—	Bigamist, The... dr A
—	1	4	Blades of the Musketeers... adv AY
1	6	4	Blowing Wild... mel A
—	12	2	Blueprint for Murder, A... cri-mel A
—	4	12	Botany Bay... adv-c A
—	11	6	Caddy, The... mus-com AY
2	6	4	Calamity Jane... mus-wes-c AY
—	3	—	Captain John Smith and Pocahontas... hist-dr-c A

A	B	C	
—	—	5	Captain Scarlett... adv-c AY
1	10	2	Captain's Paradise, The (British)... com A
1	9	2	Cease Fire... war-dr AY
—	5	2	Champ for a Day... mel A
—	10	4	Charge at Feather River, The... wes-c A
—	6	3	China Venture... war-mel-c A
—	5	—	City is Dark, The... mys-mel A
—	7	6	City of Bad Men... wes-c A
—	4	2	Clipped Wings... war-com A
—	3	5	Combat Squad... war-mel AY
—	7	3	Conquest of Cochise... hist-mel-c AY
3	4	—	Conquest of Everest, The (British)... doc-c AY
—	10	1	Crazylegs, All American... dr AY
—	7	4	Cruisin' Down the River... mus-com-c AY
—	9	6	Dangerous Crossing... mys-mel AY
1	9	7	Decameron Nights (British)... rom-c A
—	9	5	Desperate Moment (British)... mel A
—	4	10	Devil's Canyon... mel-c A
—	—	6	Devil's Plot (British)... mel A
—	4	3	Diamond Queen, The... adv-c AY
—	2	6	Donovan's Brain... sci-mel A
—	—	3	Doomed (Italian)... mel A
—	4	3	Down Laredo Way... wes AY
—	2	11	East of Sumatra... adv-c A
—	7	2	Easy to Love... mus-com-c A
—	5	5	Eddie Cantor Story, The... mus-biog-c AY
—	—	3	El Alamein... war-mel AY
—	3	4	El Paso Stampede... wes AY
—	8	—	Escape from Fort Bravo... mel-c AY
—	1	6	Fake, The... mel A
—	5	—	Fighter Attack... war-dr-c AY
—	2	1	Fighting Lawman, The... mel AY
—	2	5	Flame of Calcutta... mel-c A
—	2	4	Flight Nurse... war-dr AY
—	2	12	Flight to Tangier... cri-mel-c A
—	3	2	Forbidden... cri-mel A
—	1	5	Fort Algiers... mys-mel A
—	3	2	French Line, The... mus-dr-c A
—	1	4	Frightened Bride, The (British)... dr A
14	4	1	From Here to Eternity... war-dr A
—	5	—	Gay Adventure, The (British)... dr A
—	1	5	Genevieve (British)... com-c A
—	4	2	Genghis Khan (Philippines)... mel A
—	1	5	Gentle Gunman, The (British)... mel A
—	1	8	Gentlemen Prefer Blondes... mus-com-c A
—	—	6	Ghost Ship (British)... mel A
—	—	—	Gilbert and Sullivan (see Story of)
—	2	2	Give a Girl a Break... mus-com-c AY
—	12	4	Glass Webb, The... mys-mel A
—	5	5	Golden Blade, The... adv-c AY
—	3	2	Grapes Are Ripe, The (German)... com AY
—	1	3	Great Diamond Robbery... cri-com AY
—	2	3	Great Jesse James Raid, The... wes-c AY
—	10	1	Gun Belt... wes-c AY
1	3	3	Gun Fury... wes-c A
—	8	5	Half a Hero... com AY
—	2	5	Hannah Lee... wes-c A
—	1	5	Heidi (Swiss)... dr AY
—	5	3	Here Come the Girls... mus-com-c A
—	1	4	His Last 12 Hours (Italian)... dr A
—	5	5	Hondo... wes-c AY
—	3	2	Hot News... mel A
—	7	6	How to Marry a Millionaire... com-c A
—	2	15	I, the Jury... cri-mel A
—	1	11	Inferno... mel A
—	4	8	Island in the Sky... dr AY
—	2	5	It Started in Paradise (British)... dr-c A

A	B	C				A	B	C			
1	2	7	Jack Slade	wes	A	6	9	Sabre Jet	war-dr-c	AYC	
—	—	3	Jennifer	mys-dr	A	—	4	Safari Drums	mel	AYC	
2	12	2	Joe Louis Story, The	biog	AY	—	2	Saginaw Trail	mus-wes	AY	
1	3	3	Johnny the Giant Killer	car-c	AYC	5	6	Sailor of the King (British)	nov	A	
—	3	1	Journey to Love (Italian)	com	A	—	6	Sea of Lost Ships	dr	AYC	
—	9	2	Kid from Left Field, The	com	AYC	—	15	Second Chance	mel-c	A	
—	—	6	Killer Ape, The	mel	AYC	—	1	Shadow Man	mys-mel	A	
1	6	1	King of the Khyber Rifles	mel-c	AYC	—	2	Shadows of Tombstone	wes	AYC	
10	4	3	Kiss Me Kate	mus-com-c	A	—	1	Shark River	mel-c	A	
2	3	—	Knights of the Round Table	adv-c	AY	—	5	Shoot First	mys-mel	AYC	
—	1	4	La Favorita (Italian)	mus-dr	A	—	2	Sins of Jezebel	dr-c	A	
—	1	4	Last of the Pony Riders	mus-wes	AYC	—	5	Sky Commando	war-mel	AYC	
1	7	8	Latin Lovers	mus-com-c	A	—	1	Slasher, The (British)	cri-mel	A	
—	9	7	Let's Do It Again	mus-com-c	A	—	2	Slaves of Babylon	hist-c	AY	
—	11	6	Lion Is in the Streets, A	dr-c	A	2	6	So Big	dr	AY	
5	10	3	Little Boy Lost	mus-dr	AYC	1	12	So Little Time (British)	war-dr	A	
4	8	—	Little Fugitive, The	dr	A	—	4	So This Is Love	mus-biog-c	AYC	
10	5	—	Living Desert, The	doc-c	AYC	—	4	Something Money Can't Buy	com	A	
—	6	—	Long Memory, The (British)	cri-mel	A	—	4	Son of Belle Starr	wes-c	A	
—	3	3	Louisiana Territory	trav-c	AY	—	5	Song of the Land	doc-c	AYC	
—	—	4	Lucky Five, The (Italian)	dr	A	—	2	Spaceways (British)	sci	A	
—	6	10	Main Street to Broadway	dr	A	—	1	Stand at Apache River, The	wes-c	AYC	
2	7	4	Man Between, The (British)	war-mel	A	—	3	Steel Lady, The	mel	AYC	
—	1	4	Man from Cairo, The	mel	A	7	5	Story of Gilbert and Sullivan	mus-biog-c	AYC	
—	8	4	Man from the Alamo, The	wes-c	AYC	—	3	Stranger on the Prowl	propaganda-dr	A	
—	5	—	Man in Hiding (British)	mys-mel	A	—	1	Stranger Wore a Gun, The	wes-c	AY	
—	4	2	Man in the Attic	cri-dr	A	—	7	Sweethearts on Parade	mus-com-c	AYC	
—	2	3	Man of Conflict	dr	AY	—	14	Sword and the Rose, The	nov-c	A	
—	5	6	Marry Me Again	com	A	—	10	Take the High Ground	war-dr-c	A	
—	7	—	Marshal's Daughter, The	mus-wes	AYC	2	8	Tanga Tika	dr-c	A	
—	3	1	Mask of the Himalayas	dr	A	—	1	Tarzan and the She Devil	mel	A	
—	11	2	Master of Ballantrae	adv-c	AYC	—	7	Terror on a Train (British)	mys-mel	A	
—	3	4	Maze, The	mys-mel	A	—	1	Terror Street (British)	cri-mel	A	
—	1	2	Mexican Manhunt	mel	AY	—	7	Those Roadheads from	mus-com-c	AY	
—	1	5	Miss Robin Crusoe	dr-c	A	—	5	Seattle	mus-com-c	AY	
2	3	4	Miss Sadie Thompson	mel-c	A	—	3	Three Girls from Rome (Italian)	dr	A	
—	2	7	Mission Over Korea	war-mel	AY	—	3	Three Sailors and a Girl	mus-com-c	A	
2	11	4	Mister Scoutmaster	com	AYC	—	4	Thunder Over the Plains	mel-c	AYC	
4	8	5	Mogambo	adv-c	A	—	1	Thy Neighbor's Wife	dr	A	
1	2	4	Money from Home	com-c	AY	—	4	Time, Gentlemen, Please!	com	A	
—	—	3	Monsoon	mel	A	—	2	Titfield Thunderbolt	com-c	AYC	
—	2	11	Moonlighter, The	wes	A	—	1	Topeka	wes	AYC	
—	7	3	Mr. Denning Drives North	mys-mel	A	—	11	Torch Song	dr-c	A	
—	7	6	Mr. Potts Goes to Moscow	com	A	—	3	Trail of the Arrow	wes	AYC	
—	9	1	Murder on Monday (British)	cri-mel	AY	—	4	Trent's Last Case (British)	cri-mel	A	
—	3	4	Murder Without Tears	cri-mel	A	1	8	Tumbleweed	wes-c	AYC	
1	4	—	Mystery Lake	doc-c	AYC	—	5	Undercover Agent (British)	mel	A	
—	1	6	Nebraskan, The	wes-c	A	—	1	Unknown Lover, The (Italian)	dr	A	
—	5	5	Night Is My Kingdom, The	dr	A	—	2	Valley of the Headhunters	adv-c	AYC	
—	3	6	Night Without Stars (British)	dr	A	—	1	Veils of Bagdad, The	fan-c	A	
—	4	11	99 River Street	cri-mel	A	—	14	Vice Squad	cri-mel	A	
—	3	6	No Escape	cri-mel	A	—	5	Vicki	cri-mel	A	
—	5	—	Northern Patrol	mel	AYC	—	6	Village, The (Swiss)	dr	A	
—	6	3	Overcoat, The (Italian)	dr	A	—	4	Violated	cri-mel	A	
—	3	1	Paratrooper	war-dr-c	AY	—	5	Walking My Baby Back	mus-com-c	A	
—	9	—	Paris Model	dr	A	—	1	War Arrow	war-mel-c	AY	
—	1	6	Passionate Sentry, The	com	A	—	5	War Paint	mel-c	A	
—	7	9	Plunder of the Sun	mel	A	—	3	White Goddess	mel	AY	
—	1	8	Prisoners of the Casbah	adv-c	A	—	2	White Hell of Pitz Palu, The	dr	A	
—	1	5	Project M7 (British)	war-dr	AY	—	2	White Mane	dr	A	
—	5	—	Project Moonbase	sci	AY	—	1	White Witch Doctor	mel-c	AYC	
2	3	—	Prowlers of the Everglades	doc-c	AYC	—	2	Wicked Woman	dr	A	
—	1	6	Queen of Sheba (Italian)	dr	A	—	3	Wild One, The	mel	A	
—	3	6	Return to Paradise	dr-c	A	—	8	Wings of the Hawk	mel-c	AY	
—	1	4	Rob Roy	adv-c	AYC	—	2	Yellow Balloon (British)	cri-mel	A	
—	9	5	Robe, The	dr-c	AYC	—	4	Yesterday and Today	dr	AY	
—	8	9	Roman Holiday	com	A	—	4	Young Caruso (Italian)	mus-biog	A	
—	1	4	Royal African Rifles, The	war-mel-c	A						
—	—	4	Run for the Hills	com	AYC						

The Consumers' Observation Post

(Continued from page 4)

such houses if they do not have panel heating. These floor coverings are linoleum composition with a special type of asphalt-saturated felt backing, vinyl asbestos, asphalt tile, and rubber tile with a special chemically-set type of adhesive. Mr. Austin considered asphalt tile the least desirable because of its susceptibility to damage by grease and oil in the kitchen and its poor resistance to the weight of living room and bathroom furniture. In houses with radiant subfloor heating, Mr. Austin recommended linoleum with asphalt felt backing rather than any of the other three types.

* * *

FROZEN, READY-PREPARED FOODS and ready mixes that are so easy just to heat and serve are more expensive than foods prepared at home. According to a study by the U. S. Department of Agriculture, a sample menu of ready-to-serve foods, including frozen beef pie, frozen berries, pastry mixes, and prepared puddings, cost more than three times as much for materials as the same menu prepared from scratch, but it did, of course, take less time to prepare. Just how much more expensive the ready-to-serve meals will be for the average user will depend on the selection of items and how frequently they are used.

* * *

PICKING EGGS for quality has been the subject of a study by the Indiana Agricultural Experiment Station. It appears that less than half of the consumers queried were aware of the federal grading standards. The term "fresh egg" had a greater sales appeal to them as a designation of quality than the federal nomenclature, Grade A. Similarly, the word "storage" was associated with undesirability regardless of the quality of the egg as measured by the grading standards. There appeared to be little difference in the consumers' minds between Grade A eggs and Grade B eggs, although they readily distinguished the difference between Grade A and Grade C eggs. There was a wide variation in the prices paid for eggs, but a considerable number indicated that they were willing to pay a price premium

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for what they considered high-quality eggs. The study indicated that most of the eggs purchased by consumers were actually Grade B or better.

* * *

THE MOUNTING NUMBER OF CONSUMER COMPLAINTS about unsatisfactory textiles was the subject of an address by Jules Labarthe, Jr., Senior Fellow of the Mellon Institute in Pittsburgh before a textile research meeting last fall. The complaints received by retailers should be channelled back to the yarn maker, according to Dr. Labarthe, who recommended that standards for rayon and acetate published by the American Standards Association provide the basis for retailers' selection of these textiles, followed by an expansion of the standards program into the field of other textile fibers. Consumers will do well to point out to the stores from which they buy garments that turn out to be unsatisfactory in performance that they would like to be able to select their textiles on the basis of the labels proposed by the American Standards Association which indicate the performance of fabrics with respect particularly to their washability and cleanability.

* * *

SPINACH MAY HAVE ITS PLACE in the diet as a green, leafy vegetable, but it should not be eaten at the same meal with milk. In a nutrition symposium, Dr. Edward J. Stieglitz, Washington, D.C., specialist in geriatrics, commented that the simultaneous ingestion of spinach, with its high oxalate content, with milk would tend to result in malnutrition since the precipitated calcium oxalate resulting was not absorbed in the human digestive system.

* * *

NEWLY TESTED:

Golden Fleece pot cleaner and scour cloth (manufactured by Metal Textile Corp., Roselle, N.J.), 10 cents. Cloth designed for scouring pots and pans consisted of fabric coated with an adhesive carrying angular grains of quartz. Quartz is a harsh abrasive and would mar the surfaces of highly polished cooking ware; Golden Fleece should therefore not be used on enamelware or other finely finished surfaces. The scouring pad was found to be effective in removing food stuck to pots and pans. It was more convenient to use and to clean than steel wool. It was also found to be effective in scrubbing potatoes in their skins for baking, and carrots. It was, however, considered too abrasive for shiny surfaces, aluminum and enamelware pans, chrome trim on stoves, and other articles with a polished shiny surface. Used with discretion, it will be a handy item to keep in the kitchen. It was judged to warrant a high B-Intermediate rating.

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Phonograph Records

BY WALTER F. GRUENINGER

Please Note: The first symbol applies to quality of interpretation, the second to fidelity of recording.

ANGEL RECORDS have been added to the long list of recordings in Schwann's helpful monthly catalog of LP's. British pressed, this new label is backed by Electric & Musical Industries, Ltd., which controls the important HMV and British Columbia catalogs. The disks are issued in two editions: "Factory-Sealed Package," which is doubly-inspected and cellophane wrapped (unopened before sale to the consumer) with handsome cover designs and notes on the music, priced at \$5.95 for a 12-in. disk; and "Thrifty Package," an identical record enclosed in a standard cardboard sleeve, without notes or libretto, selling for \$4.95. Except for sets with librettos or translations of songs in foreign languages, the \$4.95 disk will probably be quite satisfactory for most purchasers.

The first catalog of 28 pages contains dozens of intriguing items. Of those heard, I recommend: the thrilling, passionate, complete *Tosca* with a La Scala cast under de Sabata; the disk offering Prokofiev's *Classical Symphony*, Dukas' *Sorcerer's Apprentice*, three pieces from the *Three Cornered Hat* by de Falla, and Ravel's *La Valse* played by the Philharmonia Orchestra under Markevitch; the nearly complete *Merry Widow*, sung and spoken in German by a predominantly Viennese cast under Ackermann; a really good performance of Tchaikovsky's *Nutcracker Suite* and overture, Handel's *Water Music Suite*, played by the Philharmonia Orchestra under von Karajan; *French Military Music* played by a French band; Bartok's *Concerto for Orchestra*, played by the Philharmonia Orchestra under von Karajan, though I would skip this same group's Brahms' *Symphony No. 1*. Recording in all cases is rich, full, altogether first rate. Surfaces are virtually silent — no clicks or pops.

* * *

Beethoven: *Piano Concerto No. 3*. Serkin with the Philadelphia Orchestra under Ormandy. Columbia ML 4738. \$5.95. What a fine pianist is Serkin! The orchestra, too, is in top form with the result that here is a firm, well bound, precise, admirable *No. 3*. AA AA

Beethoven: *Symphony No. 1*. Berlin Philharmonic Orchestra under Rother and *Symphony No. 4*. Symphony Orchestra of Radio Leipzig under Abendroth. Urania UR RS 7-17. \$3.50. Best of eight new releases in Urania's low priced Request series featuring standard classics. *No. 1* is well recorded; *No. 4* is distant, less clear. Runner up: Lalo's *Symphonie Espagnole* featuring Ferdinand Meisel which is coupled with Rimsky-Korsakov's *Capriccio Espagnol*. A B

Brahms: *Variations on a Theme by Paganini* and *Variations on a Theme by Handel*. Gurevich (piano). Capitol P 8227. \$5.70. Supreme, though formidable Brahms played with power and understanding. AA A

Chopin: *Volume I*. Arrau (piano). 4 sides, Decca Set DX 130. \$11.90. First volume in the complete works for piano by Chopin which Arrau will record. Included here are the *Scherzo*, *Ballades*, *Impromptus*. Too frequently the playing is fussy, fitful, getting in the way of the music. But there are many beautiful moments and much of the music is great. Some surface hiss and swish. B A

Dohnanyi: *Ruralia Hungarica* & **Paganini:** *Caprices 13 and 20 and La Campanella*. Campoli (violin). London LS 793. \$4.95. Clean, sweet, tepid performances. A few disturbing "ghost echoes." A A

Dvorak: *Concerto for Cello and Orchestra*. Janigro with the Orchestra of the Vienna State Opera under Dixon. Westminster WL 5225. \$5.95. Excellent playing and recording of a staple in the cello repertoire. AA AA

Liszt: *Mephisto Waltz No. 1* and *Fuenerailles & Mendelssohn*: 4 pieces. Katchen (piano). London LL 824. \$5.95. More bravado in the *Mephisto* would improve matters, but in the other numbers Katchen's playing is sensitive, flowing. London's recording lacks the dynamic contrast found in the best recorded piano records; surfaces click and pop. A B

Rimsky-Korsakov: *Scheherazade*. Orchestra of the Vienna State Opera under Quadri. Westminster WL 5234. \$5.95. Lyric performance, a little slow at times, but the over-all impression is clearly favorable. Wide range recording, but balance of instruments is imperfect. A A

Shostakovich: *Symphony No. 5*. Philharmonic-Symphony Orchestra of New York under Mitropoulos. Columbia ML 4739. \$5.95. In my opinion, the best performance and recording of Shostakovich's most popular symphony. Recording exceedingly bright, requiring roll-off of the highs. AA AA

Tchaikovsky Favorites. Fuchs (violin). Decca DL 4082. \$2.50. "Melodie," "Autumn Song," and three more agreeable numbers well played. AA A

Wagner: *Götterdämmerung—Immolation Scene*, Harshaw (soprano). *Funeral Music* and *Tristan and Isolde—Prelude, Liebesnacht, Liebestod*. Philadelphia Orchestra under Ormandy. Columbia ML 4742. \$5.95. Margaret Harshaw has a long way to go to equal the great singers who have recorded the taxing *Immolation Scene*. But the Philadelphians play superbly except for a lackadaisical *Funeral Music*. A AA

Casals Festival at Prades—Schubert. Casals, Hess, Stern, Szegedi, etc. 8 sides, Columbia SL 183. \$23.80. The heavenly quintet, trios Op. 99 and 100, and two others. The standard of performance is high in all works with the palm going to the Schubert Duo. But the fidelity of recording is low in the quintet and trios. . . The same ratings apply to the Prades set of four works by Schumann and Brahms (SL 184). A B

Italian Classical Symphonists. Italian Chamber Orchestra and Soloists under Jenkins. 12 sides, Haydn Society HSL—C. \$35.70. Rarely heard 18th century symphonies and concerti by Albinoni, Sammartini, Pergolesi, Rosetti, etc. Most are gems such as Viotti's *Double Concerto for Piano and Violin*. Some are potboilers such as Brunetti's *Symphony in G Minor*. The level of performance is above average, though more nuance in the orchestral playing would help. Excellent soloists. Wide range reproduction, but the balance favors the violins. Under 20 minutes' playing time per side. . . Highly recommended is Haydn Society's HSL 82—**Vivaldi**: 3 *Concerti*, 2 *Sonatas*. A A

Richard Tucker Sings Celebrated Tenor Arias (tenor). Columbia ML 4750. \$5.95. Nine arias from "Traviata," "Faust," "La Boheme," "Carmen," etc., which nearly everybody enjoys. Tucker sings well and he is improving. But style and the quality that thrills elude him. A AA

Consumers' Research

BULLETIN



OUR READERS WRITE:

Your report on automobiles impresses me as just what the automobile owner should have as basic information.

Insurance Broker, Manhattan, Kansas

Please enter my name again among your most ardent subscribers and supporters of Consumers' Research. I couldn't do without it.

Homemaker, Cincinnati, Ohio

I should like to take this opportunity to tell you of the high regard I have for the services offered by Consumers' Research. It is, in my mind the most thorough of the consumer organizations in the reporting of information on consumers goods and services. I appreciate the policy of presenting to the subscriber as much quantitative information and performance data as may be obtained.

Engineer, Schenectady, N.Y.

I have enjoyed Consumers' Research very much. It has taught me not only to read labels, but has given me courage to refuse to purchase articles on a sales girl's promises that are not stated in writing.

Homemaker, Wayne P.O., Pa.

For many years past, my wife and I have planned together for articles to be purchased for personal or home use. We have been guided largely by information or advice contained in CR Bulletins. We have not only saved money by not purchasing at all or by purchasing wisely, we have had satisfaction that lasts after decisions and actions have been taken.

Subscriber, Williamsport, Pa.

We are regular subscribers to your magazine and would like to tell you what a very excellent job you are doing. The average buyer has no means of checking most merchandise before purchase and we found your magazine quite literally worth its weight in gold.

Engineer, Montreal, Canada

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